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ANNUAL CATALOGUE
OF
UNION UNIVERSITY



1919-1920

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ALBANY N Y

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UNION UNIVERSITY

Union University embraces the following institutions:

UNION COLLEGE, Founded 1795

Academic Department	{	Classical Course
		Latin Scientific Course
		Scientific Course
Technical Department	{	Civil Engineering Course
(Established 1845)		Electrical Engineering Course
		Pre-medical Course
		Chemical Engineering Course

ALBANY MEDICAL COLLEGE, Founded 1838

ALBANY LAW SCHOOL, Founded 1851

DUDLEY OBSERVATORY, Founded 1852

ALBANY COLLEGE OF PHARMACY, Founded 1881

Union College acquired by its charter, granted in 1795, full university powers, but the creation of graduate institutions at Schenectady was not then found practicable. Schools of law and medicine and also an astronomical observatory have long existed at Albany, only a few miles distant. The arrangement naturally suggested by these circumstances was, that the professional schools and the observatory at Albany should be united with Union College, under the charter and board of trustees of the latter. This was accordingly effected by the incorporation of Union University in 1873. The Albany College of Pharmacy was created by the board of governors on June 21, 1881, and incorporated as a department of the university on August 21 of the same year.

The president of Union College and permanent chancellor of Union University has the oversight of the university, the several institutions having their resident deans. The university board of governors is composed of permanent trustees of Union College and of representatives of each of the other institutions embraced in Union University.

1919 — UNIVERSITY CALENDAR — 1920

1919

First semester of Union College begins....Friday, September 19
 First semester of Law School begins..Wednesday, September 17
 First semester Medical College begins....Monday, September 22
 First semester College of Pharmacy.....Monday, September 22
 Election day — recess.....Tuesday, November 4
 Thanksgiving day — recess.....Thursday, November 27
 Christmas recess in all departments....Wednesday, December 24

1920

Sessions resumed.....Monday, January 5
 Day of prayer for colleges.....Thursday, January 15
 First semester of Law School ends.....Saturday, January 24
 Second semester of Law School begins....Tuesday, January 27
 First semester of Medical College ends....Tuesday, January 27
 Second semester of Medical College begins..Monday, February 9
 First semester Union College ends.....Saturday, February 7
 Second semester Union College begins.....Monday, February 9
 Washington's birthday (Feb. 22) — recess..Monday, February 23
 Easter recess.....Friday-Wednesday, April 2-7
 Commencement, College of Pharmacy.....Thursday, May 6
 Commencement, Medical Law School.....Wednesday, June 9
 Memorial day (May 30) — recess.....Monday, May 31
 Commencement week, Union College,

Thursday-Monday, June 10-14

Commencement, Medical College.....Monday, June 14
 Entrance examinations, Union College,

Tuesday-Wednesday, June 15-16

First semester Union College begins.....Friday, September 17
 First semester of Law School begins..Wednesday, September 15
 First semester Medical College begins....Monday, September 20
 First semester College of Pharmacy.....Monday, September 20
 Election day — recess.....Tuesday, November 2
 Thanksgiving day — recess.....Thursday, November 25
 Christmas recess in all departments.....Friday, December 24

For calendars of departments, see pages 21-22, 144, 165, 171.

OFFICERS OF THE UNIVERSITY

Chancellor

CHARLES ALEXANDER RICHMOND, D. D., LL. D.

Honorary Chancellor, 1919

Major General LEONARD WOOD, U. S. A.

Board of Governors

President, SIMON W. ROSENDALE, LL. D., Albany

Secretary, J. NEWTON FIERO, LL. D., Albany

Union College

GEORGE ALEXANDER, D. D.....	New York City
NICHOLAS V. V. FRANCHOT, A. M.....	Olean
EDWIN W. RICE, JR., PH. D., SC. D.....	Schenectady
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EDGAR S. BARNEY, SC. D.....	New York City
FRANKLIN H. GIDDINGS, LL. D.....	New York City
COURTLAND V. ANABLE.....	New York City
FRANK BAILEY	Brooklyn
WILLIS T. HANSON.....	Schenectady
CHARLES B. McMURRAY.....	Troy
THOMAS B. LOCKWOOD.....	Buffalo

Albany Medical College

SIMON W. ROSENDALE, LL. D.....	Albany
ALDEN CHESTER.....	Albany

Albany Law School

WILLIAM PLATT RUDD.....	Albany
J. NEWTON FIERO, LL. D.....	Albany

Dudley Observatory

WILLIAM H. SAGE.....	Albany
BENJAMIN WALWORTH ARNOLD.....	Albany

Albany College of Pharmacy

WILLIS G. TUCKER, M. D., PH. D.....	Albany
CHARLES GIBSON.....	Albany

UNIVERSITY FACULTY

CHARLES ALEXANDER RICHMOND, D. D., LL. D.
Chancellor

BENJAMIN H. RIPTON, PH. D., LL. D.
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Government

EDWARD ELLERY, A. M., PH. D., SC. D.
Dean of the Faculty, Union College, and Professor of Chemistry

CHARLES F. F. GARIS, M. S.
Dean of Students, Union College, and Professor of Mathematics

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Dean of the Medical College and Associate Professor of Medicine

J. NEWTON FIERO, LL. D.
Dean of the Law School and Lecturer on the Law of Procedure,
Equity, Evidence, Development of the Law, Current
Law, Trusts and Trustees

WILLIS G. TUCKER, PH. D.
Dean Emeritus of the College of Pharmacy

WILLIAM MANSFIELD, A. M., PHAR. D.
Dean of the College of Pharmacy and Professor of Pharma-
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BENJAMIN BOSS, A. B.
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EDWARD E. HALE, PH. D.
Professor of the English Language and Literature

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Professor of the Law of Bailments, Bills and Notes, Guarantee
and Suretyship, and Constitutional Law

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Professor of the Law of Persons and Property, Domestic
Relations, Partnership, and Agency

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Professor of the Greek Language and Literature

HOWARD OPDYKE, A. B.

Professor of Theoretical Mechanics

FRANK WHITE, M. A.

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GEORGE LAWYER

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Professor of Electrical Engineering

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* Absent on leave from Cornell University.

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Clinical Professor of Surgery

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Assistant in Dudley Observatory

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Instructor in French and Spanish

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Assistant in Chemistry

CLARENCE F. GRAHAM, M. D.
Instructor in Medicine

CLINTON P. McCORD, M. D.
Instructor in Medicine

OTTO A. FAUST, M. D.
Instructor in Medicine

E. GERALD GRIFFIN, M. D.
Instructor in Surgery

CHARLES G. McMULLEN, M. D.
Instructor in Surgery

LUCY E. BOURN, PH. B.
Instructor in Bacteriology

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Instructor in Pharmacology, Materia Medica, and Botany

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Instructor in Pharmacy and Mathematics

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Assistant in Dudley Observatory

SEBASTIAN ALBRECHT, B. S., PH. D.
Assistant in Dudley Observatory

SHERWOOD B. GRANT
Assistant in the Dudley Observatory

RALPH E. WILSON
Assistant in the Dudley Observatory

UNION COLLEGE

Union College was incorporated by the Regents of the University of the State of New York on the 25th day of February, 1795. It was the second college incorporated in the state, and the first north of the city of New York and west of the Hudson river. It received its name from the circumstance that several religious denominations co-operated in its organization, and it was the first college in the United States which was not of a strictly denominational character. It has continued from its foundation to be a representative institution of Christian unity.

The first president of Union College was the Rev. John Blair Smith, of Philadelphia. He was elected in 1795, and resigned in 1799, only a few months before his death. He was succeeded by Jonathan Edwards, the younger, who died in 1801. The Rev. Jonathan Maxcy, previously president of Brown University, succeeded Dr. Edwards, resigning at the end of two years. In 1804 the Rev. Eliphalet Nott was elected president of Union College, which office he held until his death, on the 29th day of January, 1866. The Rev. Laurens P. Hickok, a graduate of the college, who had long acted as vice-president, was elected his successor. He resigned in 1868. The Rev. Charles A. Aiken succeeded Dr. Hickok in 1869, and resigned in 1871. The Rev. Eliphalet Nott Potter was elected president in 1871, and was inaugurated June 20, 1872. On his resignation, in 1884, the Hon. Judson S. Landon was appointed president *ad interim*, and served until the inauguration of Harrison E. Webster, who was elected president May 23, 1888, and inaugurated June 26, 1888. On his resignation, in January, 1894, Rev. Andrew V. V. Raymond was elected president, and was inaugurated in June, 1894. Dr. Raymond resigned July 18, 1907, and the Rev. George Alexander was appointed president *ad interim*. On January 28, 1909, Rev. Charles Alexander Richmond was elected president. Dr. Richmond was inaugurated June 7, 1909.

1919

	S	M	T	W	T	F	S		S	M	T	W	T	F	S
Sept.	..	I	2	3	4	5	6	Nov.	..	3	..	..	5	6	7
	7	8	9	10	11	12	13		9	10	11	12	13	14	15
	14	15	16	17	18	19	20		16	17	18	19	20	21	22
	21	22	23	24	25	26	27		23	24	25	26	27	28	29
Oct.	28	29	30	..	..	..	..	Dec.	30	..	..	..	..	..	..
	..	..	..	..	..	..	..		..	1	2	3	4	5	6
	..	..	..	1	2	3	4		7	8	9	10	11	12	13
	5	6	7	8	9	10	11		14	15	16	17	18	19	20
	12	13	14	15	16	17	18		21	22	23	24	25	26	27
	19	20	21	22	23	24	25		28	29	30	31	..	..	..
	26	27	28	29	30	31	..								

1920

	S	M	T	W	T	F	S		S	M	T	W	T	F	S
Jan.	..	..	..	..	I	2	3	July	..	..	..	..	I	2	3
	4	5	6	7	8	9	10		4	5	6	7	8	9	10
	11	12	13	14	15	16	17		11	12	13	14	15	17	17
	18	19	20	21	22	23	24		18	19	20	21	22	23	24
Feb.	25	26	27	28	29	30	31	Aug.	25	26	27	28	29	30	31

	1	2	3	4	5	6	7		1	2	3	4	5	6	7
	8	9	10	11	12	13	14		8	9	10	11	12	13	14
Mar.	15	16	17	18	19	20	21	Sept.	15	16	17	18	19	20	21
	22	23	24	25	26	27	28		22	23	24	25	26	27	28
	29	..	..	..	..	..	..		29	30	31	..	..	..	..

Apr.	..	1	2	3	4	5	6	Oct.	..	..	..	I	2	3	4
	7	8	9	10	11	12	13		5	6	7	8	9	10	11
	14	15	16	17	18	19	20		12	13	14	15	16	17	18
	21	22	23	24	25	26	27		19	20	21	22	23	24	25
May	28	29	30	31	..	..	..	Nov.	26	27	28	29	30	..	..

	..	..	..	..	I	2	3		..	..	..	..	..	1	2
	4	5	6	7	8	9	10		3	4	5	6	7	8	9
June	11	12	13	14	15	16	17	Dec.	10	11	12	13	14	15	16
	18	19	20	21	22	23	24		17	18	19	20	21	22	23
	25	26	27	28	29	30	..		24	25	26	27	28	29	30
	..	..	..	..	..	..	..		31	..	..	..	..	..	..
July	..	..	..	..	..	..	1	Nov.	..	..	..	..	..	..	..
	2	3	4	5	6	7	8		..	1	2	3	4	5	6
	9	10	11	12	13	14	15		7	8	9	10	11	12	13
	16	17	18	19	20	21	22		14	15	16	17	18	19	20
Aug.	23	24	25	26	27	28	29	Dec.	21	22	23	24	25	26	27
	30	31	..	..	..	..	..		28	29	30	..	..	..	..

Sept.	..	..	..	..	..	..	..	Nov.	..	..	..	..	..	..	..

Oct.	..	..	..	..	..	..	..	Dec.	..	..	..	..	..	..	..

Nov.	..	..	..	..	..	..	..	Dec.	..	..	..	..	..	..	..

Dec.	..	..	..	..	..	..	..	Dec.	..	..	..	..	..	..	..

Figures in heavy type indicate days on which Union College is in session

UNION COLLEGE CALENDAR

Year 1919-1920

1919

Entrance examinations.....Thursday-Friday, September 18-19
 Registration, upper classes.....Friday, September 19
 Conditions examinations.....Friday-Saturday, September 19-20
 Registration day for freshmen.....Saturday, September 20
 First Chapel exercise and recitations....Monday, September 22
 Election day — recess.....Tuesday, November 4
 Thanksgiving recess, beginning at noon, Wednesday, November 26
 Classes resumed.....Monday, December 1
 Entrance conditions examinations..Friday-Saturday, December 5-6
 Allison-Foote debate.....Friday, December 19
 Christmas recess, beginning.....Wednesday, December 24

1920

Classes resumed.....Monday, January 5
 Day of prayer for colleges.....Thursday, January 15
 Examinations begin, first semester.....Wednesday, January 28
 First semester ends.....Saturday, February 7
 Registration, second semester.....Monday, February 9
 Classes begin.....Tuesday, February 10
 Washington's birthday (Feb. 22) — recess..Monday, February 23
 Easter recess.....Friday-Wednesday, April 2-7
 Conditions examinations.....Friday-Saturday, April 9-10
 Selection of junior and sophomore orators....Thursday, April 15
 Presentation of prize essays.....Saturday, May 1
 Moving-up day.....Saturday, May 22
 Senior examinations begin.....Monday, May 24
 Senior examinations end.....Saturday, May 29
 Memorial day (May 30) — recess.....Monday, May 31
 Examinations begin, second semester.....Tuesday, June 1
 Examinations end, second semester.....Thursday, June 10
 Prize oratory of juniors and sophomores.....Thursday, June 10
 Meeting of trustees, societies, alumni.....Friday, June 11
 President's reception.....Friday, June 11
 Alumni day.....Saturday, June 12
 Baccalaureate sermon.....Sunday, June 13
 Commencement, second Monday in June.....Monday, June 14
 Entrance examinations.....Tuesday-Wednesday, June 15-16

UNION COLLEGE CALENDAR

Year 1920-1921

1920

Entrance examinations.....Thursday-Friday, September 16-17
 Registrations, upper classes.....Friday, September 17
 Conditions examinations.....Friday-Saturday, September 17-18
 Registration day for freshmen.....Saturday, September 18
 First Chapel exercises and recitations....Monday, September 20
 Election day — recess.....Tuesday, November 2
 Thanksgiving day recess, beginning at noon,

Wednesday, November 24

Classes resumed.....Monday, November 29
 Entrance conditions examinations, Friday-Saturday, December 3-4
 Allison Foote debate.....Friday, December 17
 Christmas recess, beginning.....Friday, December 24

1921

Classes resumed.....Tuesday, January 4
 Day of prayer for colleges.....Thursday, January 20
 Examinations begin, first semester.....Wednesday, January 26
 First semester ends.....Saturday, February 5
 Registration, second semester.....Monday, February 7
 Classes begin.....Tuesday, February 8
 Washington's birthday — recess.....Tuesday, February 22
 Easter recess.....Friday-Wednesday, March 25-30
 Conditions examinations.....Friday-Saturday, April 8-9
 Selection of junior and sophomore orators.....Friday, April 15
 Moving-up day.....Saturday, May 21
 Presentation of prize essays.....Monday, May 2
 Senior examinations begin.....Monday, May 23
 Senior examinations end.....Saturday, May 28
 Memorial day — recess.....Monday, May 30
 Examinations begin, second semester.....Tuesday, May 31
 Examinations end, second semester.....Thursday, June 9
 Prize oratory of juniors and sophomores.....Thursday, June 9
 Meeting of trustees, alumni, societies.....Friday, June 10
 President's reception.....Friday, June 10
 Alumni day.....Saturday, June 11
 Baccalaureate sermon.....Sunday, June 12
 Commencement, second Monday in June.....Monday, June 13
 Entrance examinations.....Tuesday-Wednesday, June 14-15

TRUSTEES OF UNION COLLEGE

Ex-Officio. { HON. ALFRED E. SMITH, Governor
 HON. HARRY C. WALKER, Lieutenant-Governor
 HON. FRANCIS M. HUGO, Secretary of State
 HON. EUGENE M. TRAVIS, Comptroller
 HON. JAMES L. WELLS, Treasurer
 HON. CHARLES D. NEWTON, Attorney-General

REV. GEORGE ALEXANDER, D. D., LL. D., 47 University place, New York

HON. NICHOLAS V. V. FRANCHOT, A. M., Olean

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FRANK BAILEY, ART. D., 175 Remsen street, Brooklyn

CHARLES B. McMURRAY, A. M., Cannon Place, Troy

THOMAS B. LOCKWOOD, A. B., 212 Fidelity Bldg., Buffalo

WILLIS R. WHITNEY, PH. D., Research Laboratory, Gen. Elec. Co., Schenectady

HIRAM C. TODD, PH. B., Saratoga, term of office expiring June, 1923

FRANK BURTON, A. B., Gloversville, term of office expiring June, 1920

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All administrative offices are in the Administration Building

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President—Room 6

Consultation hour 12-1 daily

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Dean of the Faculty—Room 8

Office Hours 3-5 P. M.*

CHARLES F. F. GARIS, M. S.

Dean of Students—Room 1

Office Hours 3-5 P. M.*

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Librarian

Library Hours 8 A. M.-1 P. M., 2-6 P. M.*, 7:30-9 P. M.

* Except Saturday P. M.

COURSES OF STUDY

1. Courses leading to the Degree of A. B.

In the last two years of courses 1 and 2 below all studies are elective.

Classical Course A. Greek is required for admission to this course. Latin and Greek are continued for two years. See pages 33, 97.

Classical Course B. This course may be pursued by candidates who satisfy the requirements for admission to the B. S. course C. Greek is begun on entrance and required for two years. See pages 33, 98.

2. Courses leading to the Degree of B. S.

B. S. Course A. This course is based on the study of mathematics and the sciences, with extended work in English and other modern languages. See pages 34, 99.

B. S. Course B. This course continues the study of Latin in place of the work in science required in Course A. See pages 34, 100.

B. S. Course C. This course offers Latin without Greek, for which is substituted work in modern languages. See pages 33, 102.

Students in full standing at the end of junior year who have the profession of medicine in view are permitted to take the first year studies of the Albany Medical College as a substitute for the studies of the senior year in Union College. The academic degree is conferred on the successful completion of the first year in the Medical College.

3. Course leading to the Degree of B. S. in C. E.

Civil Engineering Course. This course offers the foundation of a broad engineering education, comprising all the essential subjects of the profession. During the third and fourth years three alternative options are offered. See pages 34, 104.

Option A. In this division the fundamental principles of advanced technical subjects receive emphasis.

Option B. In this division studies are offered which lead to a

training for engineering positions of an executive or administrative nature.

Option C. In this division special work in sanitary engineering is given.

4. Course leading to the Degree of B. S. in E. E.

Electrical Engineering Course. This course is intended to give a broad and thorough engineering education, with the specific instruction requisite for electrical engineering. During the first two years of the course the work is the same as in the general engineering department; during the junior and senior years the two courses are wholly distinct. See pages 34, 108.

5. Course leading to the Degree of B. S. in Chemistry

This course prepares for positions in industrial chemistry, for teaching chemistry, or for university studies in candidacy for a doctor's degree in chemistry. See pages 34, 110.

6. Two Year Pre-Medical Course

This course is offered to meet the requirements for admission to the Medical Department of Union University in accordance with the recommendations of the American Medical Association. See pages 34, 112.

7. Courses leading to Graduate Degrees

Course leading to degree of M. S. in C. E. This course of one year's graduate study consists of lectures, laboratory practice and research work, and is open to graduates of the general or the sanitary engineering course of Union College, or of any other institution of a standing recognized by the faculty. See pages 64, 129.

Course leading to degree of M. S. in E. E. This course of one year's graduate study consists of lectures, laboratory practice and research work, and is open to graduates of the electrical engineering course of Union College, or of any other institution of a standing recognized by the faculty. See pages 72, 129.

Course leading to degree of Ph. D. This course of two years' graduate study requires for admission the degree of M. S. in E. E. or an equivalent. See pages 73, 129.

REQUIREMENTS FOR ADMISSION

Application and Registration

Blank forms of application to be filled out and forwarded in advance will be furnished by the secretary on request.

Candidates must be at least sixteen years old, and as a preliminary to registration, whether for examination or for enrollment, must present themselves at the office of the secretary on the date named in the calendar published in the college catalogue for the current year, and submit satisfactory testimonials of character.

Methods of satisfying the Requirements

By Examination. The regular entrance examinations are held on the Thursday and Friday immediately following Commencement, and on the Tuesday and Wednesday of the first week of the fall term. The schedule of examinations is given on pages 45-46. Candidates for examination in any subject are expected to present a recommendation from their school principal.

By C. E. E. B. Certificate. Candidates may take the uniform entrance examinations offered by the College Entrance Examination Board. The examinations of the board are held in June of each year, and a list of the places at which they are to be held is published by the board about March 1st. Applications to attend the board's examinations must be addressed to *College Entrance Examination Board, 431 West 117th Street, New York, N. Y.*, and must be made upon a blank form to be obtained from the secretary of the board upon request. The certificates of this board will be accepted for all subjects passed at a satisfactory grade.

By Regents Diploma. The academic and college entrance diplomas issued by the New York State Education Department will be accepted so far as they cover the requirements for admission to the course desired.

By School Certificate. Certificates from schools approved by the faculty will be accepted for graduates of the school if they

cover the requirements for admission to the course desired and contain a recommendation from the principal of the school that the candidate be admitted to college. For non-graduates certificates may, on recommendation by the principal, be accepted for subjects other than English, mathematics and modern language. Blank certificates, to be filled out by principals of schools, will be furnished upon application to the *Secretary, Union College, Schenectady, N. Y.*

So far as possible all credentials should be forwarded by July 10 of the year in which the candidate desires to enter, and it is expected that all certificates will be submitted not later than September 1st.

Students who enter the freshman class by certificate and fail to maintain their class standing are required to pass entrance examinations in the departments in which they have failed, if they apply for readmission.

Subjects Required for Admission to Each Course

Candidates for admission to the freshman class in any course must meet the requirements specified for that course. The subjects are numbered as in the general list given on pages 35-45.

The term *unit* is used in this catalogue in the sense established by the Carnegie Foundation and the College Entrance Examination Board, and means a course of 4 or 5 periods weekly throughout an academic year of the preparatory school.

A. B. Course A. For admission to this course the following subjects are required:

1. English: a, b.....	See Page 35.....	3 units
2. Greek: a, b, c.....	See Page 40.....	3 units
3. Latin: a, b, c, d.....	See Page 40.....	4 units
5. Mathematics: a, b.....	See Page 43.....	2½ units
8. Electives.....	See Page 44.....	2½ units

Total 15 units

A.B. Course B. and B.S. Course C. For admission to these courses the following subjects are required:

1. English: a, b.....	See Page 35.....	3 units
3. Latin: a, b, c, d.....	See Page 40.....	4 units
4. Modern Languages: a or b or c.....	See Page 41.....	2 units
5. Mathematics: a, b.....	See Page 43.....	2½ units
7. History: a, b, c.....	See Page 44.....	2 units
8. Electives.....	See Page 44.....	1½ units

Total 15 units

B.S. Course A and B.S. Course B. For admission to these courses the following subjects are required:

1. English: a, b.....	See Page 35.....	3 units
4. Modern Languages: a or b or c.....	See Page 41.....	2 units
5. Mathematics: a, b.....	See Page 43.....	2½ units
6. Science	See Page 44.....	1 unit
7. History: c.....	See Page 44.....	1 unit
8. Electives	See Page 44.....	5½ units

Total 15 units

B.S. Course in C.E. and B.S. Course in E.E. For admission to these courses the following subjects are required:

1. English: a, b.....	See Page 35.....	3 units
4. Modern Languages: a or b or c.....	See Page 41.....	2 units
5. Mathematics: a, b.....	See Page 43.....	2½ units
6. Science.....	See Page 44.....	1 unit
7. History: c.....	See Page 44.....	1 unit
8. Electives.....	See Page 44.....	5½ units

Total 15 units

B.S. Course in Chemistry. For admission to these courses the following subjects are required:

1. English: a, b.....	See Page 35.....	3 units
4. Modern Languages: a or b or c.....	See Page 41.....	2 units
5. Mathematics: a, b.....	See Page 43.....	2½ units
6. Chemistry	See Page 44.....	1 unit
7. History: c.....	See Page 44.....	1 unit
8. Electives.....	See Page 44.....	5½ units

Total 15 units

Pre-Medical Course. For admission to this course the following subjects are required:

1. English: a, b.....	See Page 35	3 units
4. Modern Languages: a or b or c.....	See Page 41	2 units
5. Mathematics: a, b.....	See Page 43	2½ unit
6. Science	See Page 44	1 units
7. History: c	See Page 44	1 unit
8. Electives.....	See Page 44	5½ units

Total 15 units

Advanced Standing. Candidates from other colleges must bring letters of honorable dismissal, and certificates showing work done. Candidates for a degree must enter not later than the beginning of the senior year.

Requirements in Individual Subjects

1. English (3 units)

The study of English in school has two main objects: (1) command of correct and clear English, spoken and written; (2) ability to read with accuracy, intelligence, and appreciation.

Grammar and Composition

The first object requires instruction in grammar and composition. English grammar should ordinarily be reviewed in the secondary school; and correct spelling and grammatical accuracy should be rigorously exacted in connection with all written work during the four years. The principles of English composition governing punctuation, the use of words, sentences, and paragraphs should be thoroughly mastered; and practice in composition, oral as well as written, should extend throughout the secondary school period. Written exercises may well comprise letter-writing, narration, description, and easy exposition and argument. It is advisable that subjects for this work be taken from the student's personal experience, general knowledge, and studies other than English, as well as from his reading in literature. Finally, special instruction in language and composition should be accompanied by concerted effort of teachers in all branches to cultivate in the student the habit of using good English in his recitations and various exercises, whether oral or written.

Literature

The second object is sought by means of two lists of books, headed respectively *Reading* and *Study*, from which may be framed a progressive course in literature covering four years. In connection with both lists, the student should be trained in reading aloud and be encouraged to commit to memory some of the more notable passages both in verse and in prose. As an aid to literary appreciation, he is further advised to acquaint himself with the most important facts in the lives of the authors whose works he reads and with their place in literary history.

A. Reading

The aim of this course is to foster in the student the habit of intelligent reading and to develop a taste for good literature, by giving him a first-hand knowledge of some of its best specimens. He should read the books carefully, but his attention should not be so fixed upon details that he fails to appreciate the main purpose and charm of what he reads.

With a view to large freedom of choice, the books provided for reading are arranged in the following groups, from each of which at least *two* selections are to be made, except as otherwise provided under Group I.

GROUP I. Classics in Translation

The Old Testament, comprising at least the chief narrative episodes in Genesis, Exodus, Joshua, Judges, Samuel, Kings, and Daniel, together with the books of Ruth and Esther. The Odyssey, with the omission, if desired, of Books I, II, III, IV, V, XV, XVI, XVII. The Iliad, with the omission, if desired, of Books XI, XIII, XIV, XV, XVII, XXI. The Aeneid. The Odyssey, Iliad and Aeneid should be read in English translations of recognized literary excellence. For any selection from this group a selection from any other group may be substituted.

GROUP II. Shakespeare

Midsummer-Night's Dream, Merchant of Venice, As You Like It, Twelfth Night, The Tempest, Romeo and Juliet, King John, Richard II, Richard III, Henry V, Coriolanus, Julius Caesar, Macbeth, Hamlet. The last three if not chosen for study under B.

GROUP III. Prose Fiction

Malory, Morte d'Arthur (about 100 pages); Bunyan, Pilgrim's Progress, Part I; Swift, Gulliver's Travels (voyages to Lilliput and to Brobdingnag); Defoe, Robinson Crusoe, Part I; Goldsmith, Vicar of Wakefield; Frances Burney, Evelina; Scott's Novels, any one; Jane Austen's Novels, any one; Maria Edgeworth, Castle Rackrent, or The Absentee; Dickens' Novels, any one; Thackeray's Novels, any one; George Eliot's Novels, any

one; Mrs. Gaskell, *Cranford*; Kingsley, *Westward Ho!* or *Here-ward the Wake*; Reade, *The Cloister and the Hearth*; Blackmore, *Lorna Doone*; Hughes, *Tom Brown's Schooldays*; Stevenson, *Treasure Island*, or *Kidnapped*, or *Master of Ballantrae*; Cooper's Novels, any one; Poe, *Selected Tales*; Hawthorne, *The House of the Seven Gables*, or *Twice Told Tales*, or *Mosses from an Old Manse*; a collection of *Short Stories* by various standard writers.

GROUP IV. Essays, Biography, etc.

Addison and Steele, *The Sir Roger de Coverley Papers*, or selections from the *Tatler* and the *Spectator* (about 200 pages); Boswell, selections from the *Life of Johnson* (about 200 pages); Franklin, *Autobiography*; Irving, selections from the *Sketch Book* (about 200 pages), or *Life of Goldsmith*; Southey, *Life of Nelson*; Lamb, selections from the *Essays of Elia* (about 100 pages); Lockhart, selections from the *Life of Scott* (about 200 pages); Thackeray, lectures on Swift, Addison and Steele in the *English Humorists*; Macaulay, any one of the following essays: *Lord Clive*, *Warren Hastings*, *Milton*, *Addison*, *Goldsmith*, *Frederic the Great*, *Madame d'Arblay*; Trevelyan, selections from the *Life of Macaulay* (about 200 pages); Ruskin, *Sesame and Lilies*, or *Selections* (about 150 pages); Dana, *Two Years before the Mast*; Lincoln, *Selections*, including at least the two *Inaugurals*, the *Speeches in Independence Hall* and at *Gettysburg*, the *Last Public Address*, the *Letter to Horace Greeley*, together with a brief memoir or estimate of Lincoln; Parkman, *The Oregon Trail*; Thoreau, *Walden*; Lowell, *Selected Essays* (about 150 pages); Holmes, *The Autocrat of the Breakfast Table*; Stevenson, *An Inland Voyage and Travels with a Donkey*; Huxley, *Autobiography* and selections from *Lay Sermons*, including the addresses on *Improving Natural Knowledge*, *A Liberal Education*, and *A Piece of Chalk*; a collection of *Essays* by Bacon, Lamb, DeQuincey, Hazlitt, Emerson, and later writers; a collection of *Letters* by various standard writers.

GROUP V. Poetry

Palgrave's *Golden Treasury* (First Series), Books II and III, with special attention to Dryden, Collins, Gray, Cowper, and

Burns; Palgrave's Golden Treasury (First Series), Book IV, with special attention to Wordsworth, Keats, and Shelley (if not chosen for study under B); Goldsmith, *The Traveller* and *The Deserted Village*; Pope, *The Rape of the Lock*; a collection of English and Scottish Ballads, as, for example, some Robin Hood ballads, *The Battle of Otterburn*, *King Estmere*, *Young Beichan*, *Bewick* and *Grahame*, *Sir Patrick Spens*, and a selection from later ballads; Coleridge, *The Ancient Mariner*, *Christabel*, and *Kubla Khan*; Byron, *Childe Harold*, Canto III or IV, and *The Prisoner of Chillon*; Scott, *The Lady of the Lake*, or *Marmion*; Macaulay, *The Lays of Ancient Rome*, *The Battle of Naseby*, *The Armada*, *Ivry*; Tennyson, *The Princess*, or *Gareth and Lynette*, *Lancelot and Elaine*, and *The Passing of Arthur*; Browning, *Cavalier Tunes*, *The Lost Leader*, *How They Brought the Good News from Ghent to Aix*, *Home Thoughts from Abroad*, *Home Thoughts from the Sea*, *Incident of the French Camp*, *Hervé Riel*, *Pheidippides*, *My Last Duchess*, *Up at a Villa — Down in the City*, *The Italian in England*, *The Patriot*, *The Pied Piper*, "*De Gustibus*" —, *Instans Tyrannus*; Arnold, *Sohrab and Rustum*, and *The Forsaken Merman*; selections from American Poetry, with special attention to Poe, Lowell, Longfellow, and Whittier.

B. Study

This part of the requirement is intended as a natural and logical continuation of the student's earlier reading, with greater stress laid upon form and style, the exact meaning of words and phrases, and the understanding of allusions. The books provided for study are arranged in four groups, from each of which one selection is to be made.

GROUP I. Drama

Shakespeare, *Julius Caesar*, *Macbeth*, *Hamlet*.

GROUP II. Poetry

Milton, *L'Allegro*, *Il Penseroso*, and either *Comus* or *Lycidas*; Tennyson, *The Coming of Arthur*, *The Holy Grail*, and *The Passing of Arthur*; the selections from Wordsworth, Keats, and Shelley in Book IV of Palgrave's Golden Treasury (First Series).

GROUP III. Oratory

Burke, Speech on Conciliation with America; Macaulay's two Speeches on Copyright and Lincoln's Speech at Cooper Union; Washington's Farewell Address and Webster's First Bunker Hill Oration.

GROUP IV. Essays

Carlyle, Essay on Burns, with a selection from Burns's Poems; Macaulay, Life of Johnson; Emerson, Essay on Manners.

Examination

Any examination set will be divided into two parts, one of which will be on grammar and composition, and the other on literature.

However accurate in subject-matter, no paper can be considered satisfactory if seriously defective in punctuation, spelling or other essentials of good usage.

In grammar and composition, the candidate may be asked specific questions upon the practical essentials of these studies, such as the relation of the various parts of a sentence to one another, the construction of individual words in a sentence of reasonable difficulty, and those good usages of modern English which one should know in distinction from current errors. The main test in composition will consist of one or more essays, developing a theme through several paragraphs; the subjects will be drawn from the books read, from the candidate's other studies and from his personal knowledge and experience quite apart from reading. For this purpose the examiner will provide several subjects, perhaps eight or ten, from which the candidate may make his own selections. He will not be expected to write more than four hundred words per hour.

The examination in literature will include:

a. General questions designed to test such a knowledge and appreciation of literature as may be gained by fulfilling the requirements defined under *A. Reading*, above. The candidate will be required to submit a list of the books read in preparation for the examination, certified by the principal of the school in

which he was prepared; but this list will not be made the basis of detailed questions.

b. A test on the books prescribed for study, which will consist of questions upon their content, form, and structure, and upon the meaning of such words, phrases, and allusions as may be necessary to an understanding of the works and an appreciation of their salient qualities of style. General questions may also be asked concerning the lives of the authors, their other works, and the periods of literary history to which they belong.

2. Greek (2 units)

a. **Grammar and Composition** (1 unit). The common forms, idioms, and constructions, and the general grammatical principles of Attic Greek prose. Translation into Greek of detached sentences and very easy continuous prose based upon the *Anabasis*.

b. **Xenophon and Sight Translation** (1 unit). The first three books of the *Anabasis*.

c. **Homer** (1 unit). The first three books of the *Iliad* (omitting II, 494-end) or an equivalent amount of the *Odyssey*, and the Homeric constructions, forms, and prosody.

3. Latin (4 units)

a. **Grammar and Composition** (1 unit). The inflections; the simpler rules for composition and derivation of words; syntax of cases and the verb; structure of sentences in general, with particular regard to relative and conditional sentences, indirect discourse, and the subjunctive. Translation into easy Latin of detached sentences and very easy continuous prose based upon Caesar and Cicero.

b. **Caesar** (1 unit). Any four books of the *Gallic War*.

c. **Cicero** (1 unit). Four orations read slowly and carefully and two read more rapidly from the following list, or equivalents: The four orations against Catiline, Archias, The Manilian Law, Marcellus, Roscius, Milo, Sestius, Ligarius, the fourteenth Philippic.

d. **Vergil** (1 unit). Four books of the *Aeneid*, and so much

prosody as relates to accent, versification in general, and dactylic hexameter. It is recommended that two additional books be read.

Equivalents in b, c, or d, will be accepted at the discretion of the head of the department.

Every student is required to use in the college class room the Roman Method of pronunciation, and is expected to have had practice in this method at school.

4. Modern Languages (2 units)

a. German (2 units). Two years' work will be necessary to meet this requirement.

During the first year the work should comprise: 1. careful drill upon pronunciation; 2. the memorizing and frequent repetition of colloquial sentences; 3. drill upon the rudiments of grammar, that is, upon the inflection of the article, of such nouns as belong to the language of every-day life, of adjectives, pronouns, weak verbs, and the more usual strong verbs; also upon the use of the more common prepositions, the simpler uses of the modal auxiliaries, and the elementary rules of syntax and word-order; 4. abundant easy exercises designed not only to fix in mind the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; 5. the reading of from 75 to 150 pages of graduated texts from a reader, with constant practice in translating into German easy variations upon sentences selected from the reading lesson, the teacher giving the English, and in reproducing from memory sentences previously read.

During the second year the work should comprise: 1. the reading of from 150 to 250 pages of literature in the form of stories and plays; 2. accompanying practice, as before, in the translation into German of easy variations upon the matter read and also in the off-hand reproduction, sometimes orally and sometimes in writing, of the substance of short and easy selected passages; 3. continued drill upon the rudiments of the grammar, with constant applications in the construction of sentences.

b. French (2 units). Two years' work will be necessary to meet this requirement.

During the first year the course should include: 1. careful

drill in pronunciation; 2. the rudiments of grammar, including the inflection of the regular and the more common irregular verbs, the plural nouns, the inflection of adjectives, participles, and pronouns; the use of personal pronouns, common adverbs, prepositions, and conjunctions; the order of words in the sentence and the elementary rules of syntax; 3. abundant easy exercises, designed not only to fix in the memory the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; 4. the reading of from 100 to 175 duodecimo pages of graduated texts, with constant practice of translating into French easy variations of the sentences read, the teacher giving the English, and in reproducing from memory sentences previously read; 5. writing French from dictation.

During the second year the work should comprise: 1. the reading of from 250 to 400 pages of easy modern prose in the form of stories, plays, or historical or biographical sketches; 2. constant practice, as in the previous year, in translating into French easy variations upon the texts read; 3. frequent abstracts, sometimes oral and sometimes written, or portions of the text already read; 4. writing French from dictation; 5. continued drill upon the rudiments of grammar, with constant application in the construction of sentences; 6. mastery of the forms and use of pronouns, pronominal adjectives, of all but the rare irregular verb forms, and of the simpler uses of the conditional and subjunctive.

c. Spanish (2 units). Two years' work will be necessary to meet this requirement.

During the first year the work should comprise: 1. careful drill in pronunciation; 2. the rudiments of grammar, including the conjugation of the regular and the more common irregular verbs, the inflection of nouns, adjectives, and pronouns, and the elementary rules of syntax; 3. exercises containing illustrations of the principles of grammar; 4. the careful reading and accurate rendering into good English of about 100 pages of easy prose and verse, with translation into Spanish of easy variations of the sentences read; 5. writing Spanish from dictation.

During the second year the work should comprise: 1. the reading of about 200 pages of prose and verse; 2. practice in translating Spanish into English, and English variations of the text into Spanish; 3. continued study of the elements of grammar and syntax; 4. mastery of all but the rare irregular verb forms and of the simpler uses of the modes and tenses; 5. writing Spanish from dictation; 6. memorizing of easy short poems. The emphasis should be placed on careful, thorough work with much repetition rather than upon rapid reading.

5. Mathematics ($2\frac{1}{2}$ units; 3 units)

a. **Algebra** ($1\frac{1}{2}$ units). The four fundamental operations for rational algebraic expressions; factoring, determination of highest common factor and lowest common multiple by factoring; fractions, including complex fractions, ratio and proportion; linear equations, both numerical and literal, containing one or more unknown quantities; problems depending on linear equations; radicals, including the extraction of the square root of polynomials and of numbers; exponents, including the fractional and negative.

Simple cases of equations with one or more unknown quantities that can be solved by the methods of linear or quadratic equations.

Problems depending upon quadratic equations.

The binomial theorem for positive integral exponents.

The formulas for the n th term and the sum of the terms of arithmetic and geometric progressions, with applications.

b. **Plane Geometry** (1 unit). The usual theorems and constructions of good textbooks, including the general properties of plane rectilinear figures; the circle and the measurement of angles; similar polygons; areas; regular polygons and the measurement of the circle.

The solution of numerous original exercises, including loci problems.

Application to the mensuration of lines and plane surfaces.

c. **Solid Geometry** ($\frac{1}{2}$ unit). The usual theorems and constructions of good textbooks, including the relations of planes

and lines in space; the properties and measurement of prisms; pyramids, cylinders, and cones; the sphere and the spherical triangle.

The solution of numerous original exercises, including loci problems.

Applications to the mensuration of surfaces and solids.

6. Science (1 unit)

The work in science may be offered in any of the departments named below, except that for admission to the B. S. course in Chemistry, chemistry must be chosen. The figure in parenthesis shows the unit value:

- a. Physics. (1)
- b. Chemistry. (1)
- c. Biology. (1)
- d. Zoology. (1)
- e. Botany. (1)
- f. Physiography. (1)

In every instance the work expected is that outlined for the given subject in the reports of the College Entrance Examination Board and the Carnegie Foundation, or in the Syllabus of the New York State Education Department.

7. History (1 unit; 2 units)

a. **Greek History** ($\frac{1}{2}$ unit). In this study must be included the geography of ancient Greece.

b. **Roman History** ($\frac{1}{2}$ unit). In this study must be included the geography of the Roman Empire.

c. **History of the United States** (1 unit).

Elementary United States history will be accepted if the candidate presents in addition a year of history not otherwise required.

8. Electives ($1\frac{1}{2}$ units; $2\frac{1}{2}$ units; 5 units)

In completing the requirements for admission to each course a fixed number of elective units in subjects not already taken from other groups must be offered from the list below.

In every instance the work expected is that outlined for the given subject in the reports of the College Entrance Examination Board and the Carnegie Foundation, or in the Syllabus of the New York State Education Department.

For admission to A. B. Course A. $2\frac{1}{2}$ units

For admission to A. B. Course B and B. S. Course C. . $1\frac{1}{2}$ units

For admission to B. S. Course A and B. S. Course B..	5½ units
For admission to B. S. Course in C. E.....	5½ units
For admission to B. S. Course in E. E.....	5½ units
For admission to B. S. Course in Chemistry.....	5½ units
For admission to Pre-Medical Course.....	5½ units

The figure in parenthesis after each subject shows the unit value of that subject.

Greek: 1, 2, 3..	(1, 2, 3)	Greek History	(½)
Latin: 1, 2, 3, 4.	(1, 2, 3, 4)	Roman History	(½)
French: 1, 2, 3..	(1, 2, 3)	Ancient History	(1)
German: 1, 2, 3..	(1, 2, 3)	English History	(1)
Spanish 1, 2, 3 ..	(1, 2, 3)	Mediaeval and Modern History.	(1)
Civics	(½)	History of English Literature...	(½)
Physics	(1)	Plane Trigonometry	(½)
Chemistry	(1)	Spherical Trigonometry	(½)
Physiology	(½)	Drawing	(1)
Biology	(1)	Commercial Law	(½)
Zoology	(1)	Commercial Geography	(½)
Botany	(1)	Economics	(½)
Physiography	(1)		

Entrance Examinations in 1920

Entrance examinations will be held at the college in June and in September, in accordance with the schedule given below. A fee of five dollars is required at the time of registration.

Only those who register at the appointed time will be admitted to the examinations of the following days.

Schedule of the June Examinations

Tuesday, June 15

8.30 A. M. Candidates register at the office of the secretary

English a	Page 36.....	9 A. M. to 11 A. M.
English b	" 38.....	11 A. M. " 1 P. M.
Mathematics a	" 43.....	2 P. M. " 4 P. M.
Science	" 44.....	4 P. M. " 6 P. M.

Wednesday, June 16

Greek, Latin	Page 40.....	9 A. M. to 11 A. M.
French, German, Spanish. “	41.....	11 A. M. “ 1 P. M.
History	“ 44.....	2 P. M. “ 4 P. M.
Mathematics b, c.....	“ 43.....	4 P. M. “ 6 P. M.

Schedule of the September Examinations*Thursday, September 16*

8.30 A. M. Candidates register at the office of the secretary

English a	Page 36.....	9 A. M. to 11 A. M.
English b	“ 38.....	11 A. M. “ 1 P. M.
Mathematics a	“ 43.....	2 P. M. “ 4 P. M.
Science	“ 44.....	4 P. M. “ 6 P. M.

Friday, September 17

Greek, Latin	Page 40.....	9 A. M. to 11 A. M.
French, German, Spanish. “	41.....	11 A. M. “ 1 P. M.
History	“ 44.....	2 P. M. “ 4 P. M.
Mathematics b, c.....	“ 43.....	4 P. M. “ 6 P. M.

DEPARTMENTS OF INSTRUCTION**THE BIBLE**

PROFESSOR ELLERY

The Bible. The object of this course is not to acquaint the student with books about the Bible, but with the contents of the Bible itself. The only textbook recommended and used in the classroom is the Bible. The course is divided into two parts covering the entire Bible, and each part is given in alternate years.

Part I

Genesis: The formation of a nation.

Exodus, Leviticus, Numbers: The migration of a nation.

Deuteronomy: Orations and songs of Moses.

Joshua, Judges, Ruth: A nation's transition to secular government.

First Samuel, Second Samuel, First Kings, Second Kings: A nation under theocratic and secular government.

Chronicles, Ezra, Nehemiah: The ecclesiastical history of a nation.

The Books of the Prophets.

Given in 1918-19.

Part II

Esther: A story of the exiled nation.

Job: A drama of the mystery of suffering.

The Psalms, Lamentations, The Song of Solomon: Bible poetry.

The Four Gospels, The Epistles, The Revelation.

Elective for juniors and seniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

Given in 1919-20.

BIOLOGY

ASSISTANT PROFESSOR MAVOR

1. **General Biology.** This course deals during the first semester with botany, and during the second semester with zoology. The work in botany consists of an introductory study of the physiology and structure of a typical flowering plant, followed by a

study of a series of types illustrating the problems of the evolution of the plant kingdom and the relation of plants to man. The work of the second semester includes a study of the physiology, anatomy, histology and development of the frog as illustrative of a typical vertebrate. This is followed by a study of selected types showing the evolution of the animal kingdom and the problems involved therein. Laboratory work, lectures and recitations.

Required of freshmen in the pre-medical course. Elective for juniors in the A. B. and B. S. courses; four hours weekly throughout the year. Required of juniors in the chemical engineering course; three hours weekly during the first semester.

2. Comparative Anatomy of Vertebrates. A series of lectures dealing with the comparative anatomy, physiology, and evolution of vertebrates, accompanied by laboratory work in the dissection of a type of each class.

Required of sophomores in the pre-medical course. Elective in connection with course 3 for seniors in the A. B. and B. S. courses who have had course 1. Four hours weekly during the first semester.

3. Embryology. This is an elementary course. The development of a vertebrate is traced from the egg to the adult. In the laboratory the development of the frog and the chick are studied. Particular attention is paid to the earlier stages in the frog and to the later stages in the chick.

Required of sophomores in the pre-medical course. Elective in connection with course 2 for seniors in the A. B. and B. S. courses who have had course 1. Four hours weekly during the second semester.

CHEMISTRY

PROFESSOR ELLERY, MR. GREELEY, MR. HARRISON, MR. SPEAR
DR. LANGMUIR, DR. HULL, DR. DAVEY, DR. DUSHMAN, MR. RUDER,
MR. FULLER

1. General Chemistry. The course includes an exhaustive study of the non-metals and their compounds, together with the fundamental laws and modern theories of chemistry, a special

study of the common metals, and a brief introduction to organic chemistry. Methods of instruction include recitations, written quizzes, illustrated lectures, and laboratory work. Laboratory practice in the first semester involves the preparation of some of the common elements and a study of the laws of chemical combination. This part of the work is strictly quantitative. The work of the second semester includes the simpler methods of qualitative analysis involving the recognition of single metals and acid radicals in solution.

Required of sophomores in the civil engineering and electrical engineering courses. Two recitations and one laboratory period weekly throughout the year.

1a. General Chemistry. This course is similar to Course 1, in that it includes the study of metals and non-metals, theories and laws, but analytical work in the laboratory is limited to recognition of acid radicals in solution.

Required of sophomores in the B. S. Courses A and B. Elective for juniors and seniors in the A. B. courses and the B. S. Course C. Two recitations and one laboratory period weekly throughout the year.

Note: This course will be given first in 1920-1921

1b. General Inorganic Chemistry. The course includes a study of the principles and theories of chemistry and of the principal non-metallic and metallic elements as in 1a and 1b. It is the foundation for the more advanced work in chemistry given in medical colleges. The experiments performed in the laboratory are quantitative, requiring accurate measurements of weights and volums. During the latter part of the semester problems in inorganic preparations are given.

Required of freshmen in the pre-medical course. Three recitations and two laboratory periods during the first semester.

1c. Advanced Inorganic Chemistry. The work of this course includes a review of the fundamental laws of the science, a study of the modern theories, and of the properties and the methods of preparation of the common non-metals and metals. This is fol-

lowed by the theory and study of solutions, dissociation, ionization, the relation of various forms of energy to chemical change, chemical equilibrium, the periodic system and Moseley's atomic numbers, crystal structure, radio-activity, and the electronic hypothesis of matter. The applications of chemical principles in stoichiometry are studied by the use of many problems throughout the year.

Required of freshmen in the chemical engineering course. Three hours weekly during the first semester.

2. Qualitative Analysis. This course includes a study of the reactions of bases and acids in solution, instruction in blowpipe analysis, and a systematic examination of complex solutions of metals and acids, and of complex solids.

Required of sophomores in the B. S. course. Elective for juniors in the B. S. course who had biology in their sophomore year and for seniors in the A. B. and Ph. B. courses who have had course 1a. One recitation and two laboratory periods weekly throughout the year.

Note: This course will not be given after 1919-1920.

2a. Qualitative Analysis. On the experimental side this course is intended to train the student in habits of careful and exact manipulation, while developing a facility in the rapid analysis of inorganic substances. The student is required to prepare matter for analysis, and to analyze complicated mixtures. On the theoretical side the following topics are studied: Ionization and its relation to conductivity, osmotic pressure and chemical activity; chemical equilibrium and the law of mass action; the colloidal condition; solubility product.

Required of freshmen in the chemical engineering course, second semester, and of sophomores in the chemical engineering course, first semester. Three hours weekly during the second semester of freshman year, and four hours weekly during the first semester of sophomore year.

2b. Qualitative Analysis. This course is a study in the theory and practice of systematic inorganic analysis.

Required of freshmen in the pre-medical course. Three

recitations and two laboratory periods during the second semester.

2c. Analytical Chemistry. The first part of this course comprises the study of the foundation theories of qualitative analysis and a practical application of them in the group reactions of the metals and non-metals. The object of this portion of the work is to develop a facility in the rapid qualitative determination of the components of ordinary inorganic substances. The second part of the course applies the principles of analytical chemistry to quantitative determinations. After practice is gained by certain gravimetric analyses, study is made of volumetric analysis, including alkalimetry, acidimetry, iodometry, and precipitation methods with standard solutions.

Elective for seniors in the B. S. courses A and B, who have had 1a and 4a. Three hours weekly throughout the year.

Note: This course will be offered first in 1922-1923.

3. Quantitative Analysis. In this course the student becomes familiar with various gravimetric and volumetric methods of analysis.

Elective for juniors and seniors in the B. S. course who have had course 2. One recitation and two laboratory periods weekly throughout the year.

Note: This course will not be given after 1919-1920.

3a. Quantitative Analysis. The object of this course is to carry into the actual operations of exact measurements of weights and volumes the habits of carefulness and accuracy formed in course 2a. The work begins with a careful calibration of weights and determination of the sensibility of the analytical balance. This is followed by the study of the preparation of pure salts by re-crystallization, by precipitation, by change of solvent, and by double decomposition. Typical quantitative methods are then studied as follows: Determination of metals as oxid, as sulfate and sulfid, as phosphate, as chromate, and as chlorid; determination of the acids of the halogens, sulfur, and nitrogen; determination of carbonic, boric, and phosphoric acids. Following the study of these typical methods, the student is required to make a quantitative analysis of some alloys and minerals. The

study of electrolytic apparatus and manipulation is then taken up, and the electrolytic determination of some metals completes the gravimetric portion of the course. The part of the course devoted to volumetric analysis includes the usual methods of acidimetry, oxidation and reduction, iodometry, and precipitation. Practical application of volumetric methods is made in analysis of iron, copper, and manganese ores, and of commercial substances such as bleaching powder, bisulphites, and certain alloys and soils.

Required of sophomores in the chemical engineering course. Four hours weekly during the second semester.

3b. Quantitative Analysis. This course comprises problems in gravimetric and volumetric analysis designed to give familiarity with the principles, methods, and manipulations employed in quantitative chemical work.

Required of sophomores in the pre-medical course. Two recitations and two laboratory periods during the first semester.

4. Organic Chemistry. This course begins with a study of the saturated hydrocarbons, their isomerism and preparation and properties. This is followed by a study of the derivatives of the paraffines in this order: The halogen substitution products, the alcohols, the ethers, the aldehydes, the ketones, the fatty acids, esters, the amines, amids, and the carbohydrates. The work on the paraffines is followed by a study of the olefines and their derivatives, and the hydrocarbons of the acetylene series. Familiarity with these classes of organic compounds is essential to a clear understanding of the phenomenon of stereo-isomerism, which is taken up at this point. The second part of the theoretical instruction in this course is given to the study of the aromatic compounds in the following order: Benzene and its homologues; the halogen derivatives; nitro-salts; amino-compounds; the diazo-salts; the sulphonic acids and derivatives; phenols and derivatives; naphthalene and its compounds; anthracene and its compounds; pyridine and quinidine; the vegetable alkaloids; uric acid and allied compounds; terpenes; dyes and their manufacturing processes. The requirements of the course in experimental work include a study of the preparation of typical organic compounds of both the paraffine and the aromatic groups. Em-

phasis is laid not only on the production of a pure organic compound, but also upon the efficiency of the method of preparation. The students are required to secure the highest possible yield in every reaction, and are urged to study improvements of methods with a view to increasing the yield.

Required of juniors in the chemical engineering course. Four hours weekly during the first semester, and six hours weekly during the first part of the second semester.

4a. Organic Chemistry. This course comprises the preparation of typical organic substances, and a thorough study of the principles and theories of organic chemistry. In addition to the analysis of organic compounds, students in this course have opportunity to make molecular weight determinations by the vapor density method and the boiling and freezing point method. They also have opportunity to study the effects of electrolysis on typical organic compounds.

Elective for juniors in the B. S. courses A and B and for seniors in the B. S. course C who have had course 1a. Three laboratory periods weekly throughout the year.

Note: Elective in 1919-1920 for seniors in the B. S. course who have had courses 1, 2, and 3.

4b. Organic Chemistry. This course comprises a study of the principal classes of carbon compounds, with emphasis upon the general types of organic reactions. Emphasis is laid upon compounds of biological importance. This course is the basis for later work in physiological chemistry. In the laboratory the work consists of the preparation of typical compounds.

Required of sophomores in the pre-medical course. Two recitations and two laboratory periods during the second semester.

5. Sanitary Chemistry. In the first semester the course includes a limited study of gravimetric and volumetric methods in quantitative analysis. In two other semesters the course covers water analysis, both chemical and bacteriological; analysis of sewage and the effluent of sewage disposal plants; and analysis of the products of garbage disposal plants. Lectures are given during the year on public health methods of the larger cities of the United States.

Required of juniors and seniors in the civil engineering course, Option C. Four hours weekly throughout the junior year and two hours weekly during the second semester of the senior year.

6. Physical Chemistry. On the theoretical side this course includes a review of the atomic theory, the gas laws, and the periodic law as treated in the course 1c, of the theory of ionization and its allied phenomena as treated in the course 2b, and takes up in addition the kinetic theory and Van der Waals' equation, molecular complexity, relation of physical properties to composition and constitution, rate of chemical transformation and thermo-chemical change, and certain considerations connected with salt hydrolysis and neutralization of acids and bases. In the laboratory the students make molecular weight determinations, and conductivity measurements, determine boiling point and vapor pressure curves of liquid mixtures, and make practical determination of osmotic pressure. In addition some or all of the following experiments are performed: Setting up of thermostat; preparation of standard barium hydroxid solution; calibration of apparatus and study of errors; viscosity of water and benzene; distribution coefficient; refractive index; specific rotation of cane sugar; partition coefficients; heat of neutralization; transport numbers; velocity of reaction; and electromotive force measurements.

Required of juniors in the chemical engineering course. Six hours weekly during the latter part of the second semester.

7. Special Analyses. This course is largely given to laboratory practice. It takes up the methods of collecting and confining gases for analyses, the study of absorbents for various gases, methods of analyzing illuminating gas, and gases which are absorbed by water, and of determining the water vapor content of gas mixtures. The second part of the course gives especial attention to the sanitary analysis of water, and includes chemical, biological, and microscopical methods. The third part of the course is given to the analysis of food materials, and detection of adulterations. The food materials studied are milk, butter, cereals, flour, fermented liquors, and flavoring extracts.

Required of seniors in the chemical engineering course. Six hours weekly during the first semester.

Note: This course will be offered first in the first semester of 1920-1921.

8. Assaying and Industrial Chemistry. This is also largely a laboratory course. Typical methods of assaying gold, silver, lead, and copper ores are first studied. Methods of manufacturing certain important commercial products are carried out on a small scale. The list of products includes muriatic, sulfuric, and nitric acids; lime, cement, and plaster; soaps; oils and resins; paints; fertilizers; chlorin and related products; soda; starch and sugar; bleaching and laundering; explosives; petroleum; the textiles; and pulp and paper.

Required of seniors in the chemical engineering course. Six hours weekly during the second semester.

Note: This course will be offered first in the second semester of 1920-1921.

9. Research. During the senior year each student is expected to give a definite amount of time to the investigation of some chemical problem. The work involves a study of the literature of the special topic assigned and the necessary amount of laboratory experimentation. The purpose of the year's work is to give the students an introduction to methods of scientific research.

Required of seniors in the chemical engineering course. The equivalent of two hours weekly throughout the year.

10. Lecture Courses. There are given each year to the members of the junior and sophomore classes lecture courses on special topics by experts. For 1919-1920 these courses are as follows:

Metals and their Alloys.

Iron and Steel.

Crystal Structure and the X-Rays.

Theoretical Chemistry.

Theories of Atomic Structure.

These lectures are distributed through the year in such a way that they fit in with the scheme of instruction followed in the above list of courses. Conferences are held and examinations given on the material covered in the lectures.

CIVIL ENGINEERING

PROFESSOR MC KIBBEN, ASSISTANT PROFESSOR TAYLOR, ASSISTANT PROFESSOR SAYRE, MR. SCHAUFFLER, MR. MATTHEWS
PROFESSOR BERG, ASSOCIATE PROFESSOR UPSON, ASSISTANT PROFESSOR KING, ASSISTANT PROFESSOR VEDDER, MR. THALHEIMER

G.E.1. Engineering Drawing. This course commences with freehand drawing, which includes the subject of form, proportion and perspective; light and shade; the aesthetics of decorative and applied design; drawing from models and thorough practice in lettering. The last part of the term is devoted to mechanical drawing, including the study of the care and use of instruments, mechanical lettering, shading, patent office drawing, and isometric and oblique projections.

Required of freshmen in the civil engineering and the electrical engineering courses. One lecture and two drawing periods weekly during the first semester.

A good set of drawing instruments and other necessary drafting equipment are required for the mechanical drawing.

G.E.2. Engineering Drawing. This course continues the work in mechanical drawing commenced the first semester. Study is made of mechanical, civil and architectural engineering drafting room conventions, rendering in color orthographic projection of solids in the four quadrants, machine sketching, the development of working drawings, and blue printing.

Required of freshmen in the civil engineering and the electrical engineering courses. One lecture and one drawing period weekly during the second semester.

G.E.3. Engineering Drawing. This course covers practically the same work as that given in G.E.1, although less time is spent upon each part.

Required of freshmen in the chemical engineering course. One lecture and one drawing period weekly throughout the year.

A good set of drawing instruments and other necessary drafting equipment are required for the mechanical drawing.

G.E.4. Elementary Surveying. This course starts with mensuration of lines, surfaces, and solids, including the principles involved in direct and indirect measurements. This is the

preparation for the major part of the course, which is a careful study of the elementary principles of surveying. Precision and error are made an important feature in connection with the use, manipulation, and adjustment of the engineer's transit, level, and chain. Field and plotting work accompany class room study.

Required of freshmen in the civil engineering and the electrical engineering courses. One recitation and two field or drawing periods weekly during the second semester.

G.E.11. Plane Surveying. This course is a continuation of G.E.4 and consists of a study of the methods of plane surveying. Various methods of traversing, running profiles, and engineering surveying are studied. Computations include problems involving latitudes and departures, coordinates, areas, omitted measurements, error of closure, parting off land, earth work and boundaries.

Field work and plotting are conducted along practical lines to illustrate the application of these principles.

Required of sophomores in the civil engineering and the electrical engineering courses. One recitation and one field or drawing period weekly during the first semester.

G.E.5 and 12. Engineering Lectures. Lectures are given on topics pertaining to the training and qualifications of an engineer and to the engineering profession. Students are assigned parallel readings bearing on these topics.

Required, G.E.5, of freshmen in the civil engineering and the electrical engineering courses, one hour weekly during the first semester; G.E.12, of sophomores in the civil engineering and the electrical engineering courses, one hour weekly during the second semester.

G.E.13, 33 and C. E. 53. Summer Vacation Work. All students in the engineering courses during their summer vacation following the freshman, sophomore and junior years are required to prepare a report on their summer work. This report must be done under one of the following options:

- a) Actual participation in engineering work
- b) Investigation by research and reading
- c) Critical examination of some engineering project

d) Critical reading and abstract of a stated amount from an approved list of books.

The work is due at the opening of the first semester.

The details of these options are announced by the department.

Required, G.E.13 of freshmen in the civil engineering and the electrical engineering courses; G.E.33 of sophomores in the civil engineering and the electrical engineering courses; C.E.53 of juniors in the civil engineering courses.

G.E.6, 16 and C.E. 36. Commencement Term Work. In addition to the weekly field and laboratory exercises throughout the year, all freshman and sophomore engineering students, and juniors in the civil engineering course, are given an uninterrupted fifteen days' course in field-practice and laboratory work supplementary to the studies in which such practice is desirable. The course begins on the day following Commencement and continues through that and the two following weeks. The work is so selected and arranged as not only to supplement the studies of the year, but also to give instruction and practice in the organization, operation and direction of work conducted by engineering parties. This work receives three hours' credit in the first semester grades.

Required, G.E.6 of freshmen in the civil engineering and the electrical engineering courses; G.E.16 of sophomores in the civil engineering and the electrical engineering courses; C.E.36 of juniors in the civil engineering courses.

C.E.21. Topographical Surveying. The principal subjects considered in this course are the principles of stadia measurements and their applications, methods of locating contours, plane table surveying, city surveying, underground surveying, United States land surveying, and hydrographic surveying.

Field and office practice in these subjects accompany the classroom periods.

Required of juniors in the civil engineering courses. One recitation and one four hour field period weekly during the first semester.

C.E.31. Route Surveying. This course is a study of the elements of reconnaissance and location, including in detail, rail-

road curves, simple, compound, and reversed; switches and frogs, turnouts; easements; and earthwork. Field problems and office computations accompany the recitation work.

Required of juniors in the civil engineering courses. Two hours weekly during the first semester.

C.E.26. Highway Engineering. This course includes studies of road laws and the various schemes employed for the financing and administration of road building projects; types and materials of construction; the economic design and preparation of plans, specifications, estimates of cost of proposed work and the construction, inspection and maintenance of highways and their structures. Special emphasis is placed upon the details of field and office practices of various highway departments.

Required of juniors in the civil engineering courses. Three hours weekly during the second semester.

C.E.23. Descriptive Geometry. This course presupposes C.E.1 and C.E.2. Original problems relating to the stationary and revolved positions of points, lines, and planes are given in addition to the study of the first seventeen problems of Church's Descriptive Geometry. A study is also made of problems relating to tangent planes; the intersections and developments of plane, curved and warped surfaces; shades and shadows; and linear perspective. Use is made of the Schroeder models, the Olivier models, and the models of the Paris Polytechnical School. The application of the subject to engineering structures is emphasized.

Required of juniors in the civil engineering courses. One lecture, one recitation, and one drawing period weekly during the first semester.

C.E.24. Geodesy. Under this head is given a course which virtually includes four subjects. The work starts with a short study of spherical trigonometry, which prepares for work in descriptive and mathematical astronomy. This latter topic affords the student a general knowledge of astronomy. The fundamental principles of the method of least squares and their application to the solution of astronomical, physical and engineering problems are next considered. The general subject of geodesy is then

taken up, including the principles of adjustment of error, and their use in establishing empirical formulas; a discussion of the figure of the earth; triangulation; base lines; and precise leveling. The methods of the United States Forest and Geodetic Survey are emphasized. The work is accompanied by field periods and includes triangulation methods and precise leveling, together with the determination of time, latitude, azimuth and longitude.

Required of juniors in the civil engineering course, Option A. Three hours weekly during the second semester.

C.E.30. Mechanics of Materials. This comprises a study in the strength of materials including stresses and strains of all kinds of bodies subjected to various loadings. The course also takes up the production, preparation and physical properties of engineering materials. In conjunction with this work is a laboratory exercise which comprises tests of the physical properties of brick, wood, steel, iron, stone, and concrete, and also work in the cement laboratory in the preparation and properties of cement, mortar and concrete.

Required of juniors in the civil engineering courses. Three recitation hours and one laboratory period weekly during the second semester.

C.E.49. Engineering Stresses. This course consists in the application of the principle of mechanics to the determination of the stresses in the various forms of bridges and roof trusses.

Required of seniors in the civil engineering courses. Five hours weekly during the first semester.

C.E.48. Engineering Design. An important feature of this course is the work in articulate structures, foundations, masonry construction, and water-power and other hydraulic development. The exercises in this line of work are, as far as possible, chosen from professional practice, and the student is expected to carry out, from assigned data and conditions, the preliminary study, determinations of stresses, types, dimensions and details, and to turn in the results in the form of working drawings, diagrams and memoirs. The course is preceded by a series of lectures on the principles and economics of designing. The department pos-

sesses a large collection of drawings and photographs of representative engineering structures from which students can form correct ideas of modern practice in the designing of details and in the methods followed on works of this class. The courses are also supplemented by actual design in the drafting room, including a steel mill building and a plate girder bridge.

Required of seniors in the civil engineering courses. Three hours weekly during the second semester.

C.E.42. Advanced Structures. This course comprises a study of statically indeterminate structures; continuous beams, swing bridges, masonry arches, etc.

Required of seniors in the civil engineering course, Option A. Two hours weekly during the second semester.

C.E.27. Hydraulics. This course covers the principles of hydrostatic and hydrodynamic pressure, flow of water over weirs, through orifices, through pipes and open channels. The work in the class room is supplemented by laboratory exercises.

Required of juniors in the civil engineering courses. Two recitations and one laboratory or one seminar period weekly during the second semester.

C.E.37. Hydraulics. This course consists of a study of the static and kinetic pressure of water, the flow of water, rivers, canals, and pipes, and the elements of centrifugal pump, turbine, and impulse wheel design. Water power problems are emphasized.

Required of juniors in the electrical engineering course. Two recitations and one laboratory or seminar period weekly, with occasional inspection trips, during the first semester.

C.E.55. Water Supply. Under this study are considered rainfall, run-off, storage of water, quality of water, purification of and distribution of water.

Required of seniors in the civil engineering course, Options A and C. Three hours weekly during the first semester.

C.E.62. Sewerage and Sewage Disposal. This subject considers the design and construction of sewerage plants, including sewers of all kinds, and sewage disposal.

Required of seniors in the civil engineering course, Options A and C. Three hours weekly during the second semester.

C.E.41. Railroad Engineering. In this course a complete investigation is made of the economic location and construction of railroads, railroad equipment, train resistance, maintenance of way, and buildings and yards. Field and drawing periods accompany the class room work.

Required of seniors in the civil engineering course, Option A. Two recitations and one field or drawing period weekly during the first semester.

C.E.43. Motors and Motive Power. Following the work in thermodynamics and hydraulics of the junior year an outline course in motors and motive power is given in the first semester of the senior year, comprising a study of the sources of demand and supply of power, steam-boilers, steam-engines, steam-turbines, water-wheels and turbines, gas-engines, electric motors and transmission of power by shafting, belting, rope-driving, compressed air and electricity. The new laboratory affords opportunity for efficiency tests of hydraulic and other forms of motors.

Required of seniors in the civil engineering courses. Four hours weekly during the first semester.

C.E.44. History of Architecture. This course is a study of the development of architecture from the earliest times to the present from the standpoint of first, the revelation of history, and second, the evolution of form, style, type and the orders. The aesthetics of architectural composition are considered.

Required of seniors in the civil engineering courses. One hour weekly during the second semester.

C.E.46. Builing Construction. This course comprises a study of the construction of buildings including the discussion of the various materials and their preparation; the classes and methods of framing, in steel, wood and concrete; and a short study of the principles of reinforced concrete as applied to building construction.

Required of seniors in the civil engineering course, Options A and B. Three hours weekly during the second semester.

C.E.52. Foundations. A course devoted to the study of the design and construction of foundations of bridges, buildings, and other structures.

Required of seniors in the civil engineering course, Option A. One hour weekly during the second semester.

C.E.47. Sanitation. The fundamental principles of Sanitary Science are considered in this course, including the theories of disease, infection and contagion and their relation to dirt, sewage, water, ice and food.

Required of seniors in the civil engineering course, Option C. Two recitations weekly during the first semester.

C.E.58. Municipal Sanitation. This course is a continuation of G.E.47 and studies the application of sanitation to municipal problems. This includes such topics as duties of a health officer, control of epidemics, contagious diseases, milk inspection, food inspection, sewage dangers, garbage disposal, etc.

Required of seniors in the civil engineering course, Option C. Two hours weekly during the second semester.

C.E.54. Heating and Ventilation. Under this topic are considered both direct and indirect systems of heating and ventilation, including steam, hot water, natural and forced draft, and district heating.

Required of seniors in the civil engineering course, Option C. Three hours weekly during the second semester.

C.E.45 and 50. Engineering Law. This course includes a treatment of the fundamental development of law from the Roman and English common law, the function of the state in general, and the American system of federal and state jurisdiction in particular. Some attention is given to the fundamental bases of the law of contracts, agency, property rights, and corporations; and to the principles of finance and financial operations.

Required of seniors in the civil engineering courses. Two hours weekly during the first semester and three hours weekly during the second semester.

C.E.64. Thesis. Each candidate for graduation is required to

present on or before the third Wednesday in May of his graduation year a satisfactory thesis on a subject that has been approved by the professor of civil engineering. This thesis must be original in its character and may be either a design for some engineering structure or plant, process or operation, or an independent investigation of some principle, problem or matter of engineering importance. Reviews or copies of existing structures, plants or processes, unless of special educational value or involving original investigation, will not be approved as subjects. The thesis is to be in a form prescribed at the time of approval of the subject, and is to be bound for deposit in the library of the engineering department, and must be presented in this shape on or before the stipulated date. The subjects, with outlines of the proposed treatment, must be submitted in time for final approval not later than October 15th preceding graduation, and the work on the theses must be presented for inspection and criticism of the professor in charge of the department at intervals during progress.

Required of seniors in the civil engineering courses. Two hours weekly during the second semester.

Graduate Courses

The Degree of M. S. in C. E. This course of one year's resident graduate study, consisting of lectures, laboratory and research work, is open to graduates of the general or the sanitary engineering course of Union College or of any other institution of a standing recognized by the faculty. On its successful completion the degree of Master of Science in Civil Engineering is conferred.

ECONOMICS AND POLITICAL SCIENCE

ASSISTANT PROFESSOR WANLASS

Economics

1. **Elements of Economics.** This is an introductory course dealing with the development, principles, and processes of modern economic production, distribution and consumption of wealth.

Attention is also given to some of the practical problems growing out of our economic life.

Elective for juniors in the A. B. and B. S. courses. Required of seniors in the civil engineering course, Option B, and of seniors in the chemical engineering course. Three hours weekly throughout the year.

2. **Elements of Economics.** This course is the same as course 1, except that special attention is given to correlating economic principles with engineering.

Required of seniors in the electrical engineering course and of seniors in the civil engineering course, Options A and C. Three hours weekly during the first semester.

3. **Business Finance.** In this course the various forms of business enterprise are critically examined. Special attention is given to the obtaining and utilization of capital in industry, the issue and redemption of securities, and the allocation of funds in the conduct of business.

Required of juniors in the civil engineering course, Option B. Three hours weekly during the first semester.

4. **Business Administration.** The principles of business organization and management are critically examined in the course.

Required of juniors in the civil engineering course, Option B. Three hours weekly during the second semester.

5. **Banking.** The history and theory of banking is studied in this course. Special attention is given to modern banking practice in this country and to the Federal Reserve System.

Elective for seniors in the A. B. and B. S. courses. Three hours weekly during the first semester.

6. **Public Finance.** In this course the theory and practice of public financing is considered with particular reference to problems of taxation and the budget system.

Elective for seniors in the A. B. and B. S. courses. Three hours weekly during the second semester.

7. **Statistical Methods.** After a preliminary study of the value of statistics as an aid to scientific investigation, the principal methods of statistical inquiry are examined.

Elective for seniors in the A. B. and B. S. courses. Three hours weekly during the first semester. Alternate with course 5.
Not given in 1920-1921.

8. **Accounting.** After a brief introduction to the theory and practice of keeping business records, the principles of accounting are considered in detail. Special attention is given to cost-accounting and financial statements and reports.

Elective for seniors in the A. B. and B. S. courses. Three hours weekly during the second semester. Alternate with course 6.
Not given in 1920-1921.

Note: Courses 5 to 8 are open only to such students as have completed Course 1 or Course 2.

Political Science

1. **Elements of Political Science.** This is an introductory course in the theory and nature of political institutions in general, and those of the United States in particular.

Required of seniors in the civil engineering course, Option B. Elective for juniors and seniors in the A. B. and B. S. courses. Three hours weekly during the first semester.

2. **United States Government.** In this course the organization and operation of the Federal Government are considered, with particular reference to the administration of law.

Required of seniors in the civil engineering course, Option B. Elective for juniors and seniors in the A. B. and B. S. courses. Three hours weekly during the second semester.

3. **State Government.** In this course the organization and operation of the governments of the states are considered with particular reference to the state of New York.

Elective for seniors in the A. B. and B. S. courses. Three hours weekly during the first semester.

4. **Municipal Government.** In this course the government and administration of the modern American city are considered. Special attention is given to the problems of cities in the state of New York.

Elective for seniors in the A. B. and B. S. courses. Three hours weekly during the second semester.

ELECTRICAL ENGINEERING

PROFESSOR BERG, ASSOCIATE PROFESSOR UPSON, ASSISTANT PROFESSOR KING, ASSISTANT PROFESSOR VEDDER, MR. THALHEIMER
PROFESSOR MC KIBBEN, ASSISTANT PROFESSOR TAYLOR, ASSISTANT PROFESSOR SAYRE, MR. SCHAUFFLER, MR. MATTHEWS

G.E.1. Engineering Drawing. This course commences with freehand drawing, which includes the subject of form, proportion, and perspective; light and shade; the aesthetics of decorative and applied design; drawing from models and thorough practice in lettering. The last part of the term is devoted to mechanical drawing, including the study of the care and use of instruments, mechanical lettering, shading, patent office drawing, and isometric and oblique projections.

Required of freshmen in the electrical engineering course. One lecture and two drawing periods weekly during the first semester.

G.E.2. Engineering Drawing. This course continues the work in mechanical drawing commenced the first semester. Study is made of mechanical, civil, and architectural engineering drafting room conventions; rendering in color orthographic projection of solids in the four quadrants; machine sketching; the development of working drawings; and blue printing.

Required of freshmen in the electrical engineering course. One lecture and one drawing period weekly during the second semester.

G.E.3. Engineering Drawing. This course covers practically the same work as that given in G.E.1, although less time is spent upon each part.

Required of freshmen in the chemical engineering course. One lecture and one drawing period weekly throughout the year.

G.E.4. Elementary Surveying. This course starts with mensuration of lines, surfaces, and solids, including the principles involved in direct and indirect measurements. This is the preparation for the major part of the course, which is a careful study of the elementary principles of surveying. Precision and error are made an important feature in connection with the use,

manipulation, and adjustment of the engineer's transit, level, and chain. Field and plotting work accompany class room study.

Required of freshmen in the electrical engineering course. One recitation and two field or drawing periods weekly during the second semester.

G.E.11. Plane Surveying. This course is a continuation of G.E.4 and consists of a study of the methods of plane surveying. Various methods of traversing, running profiles, and engineering surveying are studied. Computations include problems involving latitudes and departures, coordinates, areas, omitted measurements, error of closure, parting off land, earth work and boundaries.

Field work and plotting are conducted along practical lines to illustrate the application of these principles.

Required of sophomores in the electrical engineering course. One recitation field or drawing period weekly during the first semester.

G.E.5 and 12. Engineering Lectures. Lectures are given on topics pertaining to the training and qualifications of an engineer and to the engineering profession. Students are assigned parallel readings bearing on these topics.

Required, G.E.5 of freshmen in the electrical engineering course, one hour weekly during the first semester; G.E.12 of sophomores in the electrical engineering course, one hour weekly during the second semester.

G.E.13 and 33. Summer Vacation Work. All students in the engineering courses during their summer vacation following the freshman and sophomore years are required to prepare a report on their summer work. This report must be done under one of the following options:

- a) Actual participation in engineering work.
- b) Investigation by research and reading.
- c) Critical examination of some engineering project.
- d) Critical reading and abstract of a stated amount from an approved list of books.

The details of these options are announced by the department. The work is due at the opening of the first semester.

Required, G.E.13 of freshmen in the electrical engineering course; G.E.33 of sophomores in the electrical engineering course.

G.E.6 and 16. Commencement Term Work. In addition to the weekly field and laboratory exercises throughout the year, all freshman and sophomore engineering students are given an uninterrupted fifteen days' course in field-practice and laboratory work supplementary to the studies in which such practice is desirable. The course begins on the day following Commencement and continues through that and the two following weeks. The work is so selected and arranged as not only to supplement the studies of the year, but also to give instruction and practice in the organization, operation and direction of work conducted by engineering parties. This work receives three hours' credit in the first semester grades.

Required, G.E.6 of freshmen in the electrical engineering course; G.E.16 of sophomores in the electrical engineering course.

M.E.1. Advanced Mechanics. This course takes up the principles of mechanics from the engineering point of view. The principles of elementary mechanics are extended to three dimensions. The topics treated include: Statics, dynamics of a particle, rigid dynamics, moments of inertia, work, energy, friction, etc.

Required of juniors in the civil engineering, the electrical engineering, and the chemical engineering courses. Four hours weekly during the first semester.

M.E.2. Advanced Mechanics. This course includes structures, strengths of material, and hydraulics.

Required of juniors in the electrical engineering and chemical engineering courses. Five hours weekly during the second semester.

M.E.3. Thermodynamics. In this course the fundamental principles of thermodynamics are developed along with the mathematics necessary. The mechanical properties of perfect gases are treated, together with gas engine cycles, air-refrigeration, etc.

Required of seniors in the electrical engineering course. Three hours weekly during the first semester.

M.E.4. Thermodynamics. The fundamental principles of thermodynamics are applied to saturated and superheated steam, ammonia, and other vapors. The principles of the steam turbine, reciprocating, and gas engine are developed, and in this connection special study is made of the flow of fluids.

Required of seniors in the electrical engineering course. Three hours weekly during the second semester.

M.E.6. Thermodynamics. For description see M.E.3.

Required of juniors in the civil engineering courses. Two hours weekly during the second semester.

E.E.1. Elements of Electricity, Magnetism, and Theory of Direct Current Machines. This is an elementary course and is based on physics and mathematics.

Required of juniors in the electrical engineering and of seniors in the chemical engineering courses. Three hours weekly during the first semester.

E.E.2. Principles of Alternating Currents. This course includes the representation of alternating current waves and a review of the theory of complex numbers.

Required of juniors in the electrical engineering course, and of seniors in the chemical engineering course. Three hours weekly during the second semester.

E.E.3. Theory of Alternating Current Machines. This course deals with the transformer and the alternator.

Required of seniors in the electrical engineering course. Three hours weekly during the first semester.

E.E.4. Theory of Alternating Current Machines. Continued. This course deals with the synchronous motor, induction motor, rotary converter, alternating current commutator motors, and simple transient phenomena. Problems of illumination and power plant economics.

Required of seniors in the electrical engineering course. Three hours weekly during the second semester.

E.E.6. Electric Circuit. This is an elementary course in electricity, magnetism, and theory of direct current machines.

Required of juniors in the civil engineering courses. Three hours weekly during the second semester.

E.E.13. Seminar. This is a course intended to bring the student in touch with phases of electrical engineering which do not enter entirely into the work of the other courses. It includes lectures by members of the department, the presentation and discussion of papers by the students themselves, and local trips of inspection to the works of the General Electric Company.

Required of seniors in the electrical engineering course. One hour weekly during the first semester.

E.E.14. Seminar. This course is a continuation of E.E.13.

Required of seniors in the electrical engineering course. One hour weekly during the second semester.

E.E.21. Junior Electrical Laboratory. This is a course in laboratory work in which studies and measurements of elementary circuits are carried on. It deals also with more advanced direct current measurements and the tests of direct current generators and motors.

Required of juniors in the electrical engineering course, four hours weekly during the first semester; required of seniors in the chemical engineering course, one hour weekly during the first semester.

E.E.22. Junior Electrical Laboratory. This is a course in laboratory work dealing with more advanced direct current measurements and the study of elementary alternating current circuits.

Required of juniors in the electrical engineering course, three hours weekly during the second semester; required of seniors in the chemical engineering course, one hour weekly during the second semester.

E.E.23. Senior Electrical Laboratory. This is a course in laboratory work dealing with alternating current circuits and apparatus, especially the transformer and alternator.

Required of seniors in the electrical engineering course. Four hours weekly during the first semester.

E.E.24. Senior Electrical Laboratory. This is a course in laboratory work dealing largely with synchronous and induction motors and the synchronous converter.

Required of seniors in the electrical engineering course. Four hours weekly during the second semester.

E.E.34. Electrical Machine Design. This is a course in the designing of electrical apparatus, particularly the transformer, generator, and the induction motor.

Required of seniors in the electrical engineering course. Three hours weekly during the second semester.

Literary Essay. A literary essay on a subject determined by the department of English is prescribed during the first semester of the junior and senior years.

Special Lectures. During the year a few lectures on highly specialized subjects are given by prominent engineers. These lectures are open to juniors, seniors and graduates, and are optional.

Inspection Trips. It is desirable that each student in the electrical engineering courses participate during his college life in extended trips of inspection of engineering activities. Such trips are, therefore, arranged at a low cost to each man and vary from year to year. It is the policy of the department to continue to arrange such trips and to conduct them when sufficiently representative groups of men can attend.

Graduate Courses

The Degree of M. S. in E. E. To students desiring to continue their electrical studies a short time beyond the four-year course, a graduate course of one year is offered in which, besides instruction in higher branches of electrical engineering, advanced mathematics and physics, there is occasion to carry out original investigations in electrical engineering practice on subjects closely connected with the most recent advance of electrical engineering. This course leads to the degree of Master of Science in Electrical Engineering, and is open to graduates of Union College or of other institutions approved by the faculty.

The work must be done in residence, but the lectures are given at such hours as frequently permit students and young engineers of the General Electric Company to attend.

Credit for the work required in candidacy for the master's degree may be given to students who combine work with the General Electric Company and work at the college. When the work is divided in this way two years will be required for its completion. Before the degree is awarded the candidate must present an acceptable thesis describing original research in electrical science. The thesis may be accepted at any time within five years of the completion of the work in course.

The following courses in electrical engineering are given:

E.E.101. A course dealing with electric transient phenomena and with problems in electro-dynamics.

E.E.102. A course which supplements E.E.101 and covers experimental work of an advanced character.

E.E.105. Lectures given at irregular intervals by Dr. Steinmetz on some phases of electro-physics.

The following courses in mechanical engineering are offered:

M.E.101. A course of lectures on hydrodynamics.

M.E.102. A course of lectures on elasticity.

M.E.103. A course of lectures on heat conduction.

The Degree of Ph. D. The degree of Doctor of Philosophy is not given on the completion of a certain amount of work or the study of stated subjects for a definite period of time, but is intended to be a mark of breadth of training and high attainment. It is conferred upon the candidate who satisfactorily fulfills the following conditions:

1. A minimum of three full years of graduate work in residence, two of which must be passed at Union College, is necessary in candidacy for the degree of Doctor of Philosophy.

2. The major subject of study must be electrical science.

3. Two minor subjects of study must be pursued: the first must be mathematics, or physics, or chemistry; the second must be philosophy.

4. At the completion of the course, and two months before

the conferring of the degree, a suitable thesis must be presented to the head of the electrical engineering department, representing original work and indicating strength and ability in independent investigation.

5. Fifty printed and bound copies of the thesis must be deposited in the college library before the successful candidate may receive the diploma for his degree. The degree may be conferred, however, before such copies are deposited, upon the presentation to the treasurer of proper security for their provision. In this case, a bound typewritten copy must be placed in the library previous to the conferring of the degree.

Students engaged in research work at the laboratories of the General Electric Company, under the direction of the head of the department of electrical engineering at the college, not devoting their whole time to the work of the course, may be given half time credit for work satisfactorily completed at the college. During the last year the candidate for the degree of Doctor of Philosophy must, however, devote his entire time to work at the college.

The English Language and Literature

PROFESSOR HALE, ASSOCIATE PROFESSOR CHASE, DR. WHIPPLE, AND
MR. SHELDON

1. **Rhetoric and Composition.** The aim of this course is to train the student in the use of clear and correct English, written and spoken. The work consists of the study of rhetorical principles and practice in composition. In 1919-1920 Cantry's English Composition and Woolley's Handbook of Composition are used as text-books. Essays are written and each student meets the instructor in personal conference for advice about his individual work. Weekly talks are given of which reports are written. A certain amount of outside reading from English authors is also assigned.

Required of freshmen in the B. S. courses, the engineering courses, and the pre-medical course. Three hours weekly throughout the year.

2. **Introduction to English Literature.** This is a course of general reading aiming to acquaint the student with some of the masterpieces of English literature, to train him in the habit of

Careful reading, and to serve as a basis for more advanced study. The program is as follows: In the first semester the subject is the literature of the Elizabethan era, chiefly as seen in the plays of Shakespeare. One play is read with care, and several other plays in a more cursory manner. Thorndike and Neilson's *Facts about Shakespeare* is used for reference and additional information. In the second semester the subject is the age of Anne, and the eighteenth century as shown in the literature of the time.

Required of sophomores in the A. B., B. S. and pre-medical courses; three hours weekly throughout the year. Required of sophomores in the civil and electrical engineering courses; two hours weekly throughout the year.

4. **Nineteenth Century Literature.** Certain leading men of letters are studied as representative of the life and thought of their age. The subject matter of the course varies from year to year. Two of the following groups are ordinarily selected:

a) Poets of the nineteenth century, with special study of Byron, Wordsworth, Shelley, Keats, Tennyson, and Browning.

b) The Victorian Novel: The reading consists of six novels dealing with different phases of nineteenth century life, as, for instance, *Pickwick Papers*, *Vanity Fair*, *Cranford*, *Mill on the Floss*, *The Ordeal of Richard Feverel*, *Far from the Madding Crowd*.

c) Victorian prose, with especial study of Carlyle, Newman, and Arnold.

Elective for juniors in the A. B., and B. S. courses. Three hours weekly throughout the year.

5. **American Literature.** The course follows rather definitely the book of text used, *Century Readings in American Literature*, with the addition of lectures and illustrative material from the library.

Elective for juniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

6. **Sixteenth and Seventeenth Century Literature.** The purpose of the course is to give an understanding of the Elizabethan

age and of the seventeenth century. To this end, certain authors are studied as representative of the point of view of their time, and special attention is paid to the historical and cultural background: in the first term, Spenser, Sidney, Marlowe, and the lyric poets of both centuries; in the second term, Bacon, Browne, Bunyan, and Milton. Frequent informal reports and three or four essays of some length are required.

Elective for seniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

7. Modern English Literature. A study of the English and American literature of the last half century: its object is to give the student an idea of modern points of view. In 1919-1920 the course deals with fiction, the drama, and poetry.

Elective for seniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

Honor Course. Students who desire to be candidates for special honors should consult the head of the department early in the second semester of junior year.

8. Early English Literature. The Canterbury Tales are read and as much of Chaucer's other works as time permits. There is a certain amount of linguistic study, which is necessary for an intelligent reading of the text; but the end in view is an understanding of Chaucer's literary skill and his relations to the age in which he lived.

Elective for seniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

Not given in 1919-1920.

GEOLOGY

PROFESSOR STOLLER

1. General Science. The purpose of this course is to give the student a knowledge of the more general phenomena of nature and training in the methods of scientific study. The topics are taken up in such order as to secure continuity and a logical development of the course. The work begins with the study of the weather and its causes (meteorology). The effects of the

daily occurring change in nature in building up the exterior of the earth are then considered (physical geography and structural geology). This is followed by the study of the history of the earth and its inhabitants (historical geology and evolution). The study of prehistoric man, as based on geologic evidence leads to the final topic of the course—man and his place in nature (anthropology).

Required of freshmen in the B. S. courses A and B. Three hours weekly throughout the year.

2. **General Science.** This work follows the line of treatment of the preceding course but with some variation of the topics and with more attention given to the interpretative side of geologic and biologic science. The topics considered are, in order, meteorology, dynamic geology, historical geology and evolution, anthropology, genetics, and eugenics.

Optional with mathematics for sophomores in the A. B. courses. Three hours weekly throughout the year.

3. **General Geology.** This course is of a somewhat advanced character and includes laboratory work in mineralogy and lithology, and the interpretation of topographic and geologic maps. A number of field trips are made and the geology of the New York State formation, especially as represented in the region around Schenectady, is studied somewhat in detail.

Elective for juniors and seniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

4. **Engineering Geology.** In this course, after an introductory study of common minerals and rocks and the elements of structural geology, the work is related to the kinds and modes of occurrence of economic materials, as building stones, coal, oil, gas, and mineral ores.

Required of juniors in the civil engineering courses; three hours weekly during the first semester. Optional with mathematics for seniors in the chemical engineering course; three hours weekly throughout the year.

THE GREEK LANGUAGE AND LITERATURE

PROFESSOR BENNETT AND ASSISTANT PROFESSOR FOBES

1a. Homer: *Odyssey* VI and IX. **Lyric Poets:** Selections. **Plato:** *Apology*, *Crito*, and selections. **Euripides:** *Iphigenia in Tauris*. Lectures on the Greek theatre. **Greek Composition.** **English Composition:** Essays based on the outside reading, which is selected from English translations of the *Iliad*, the lyric poets, the dramatists, and Plato, and from standard works on Greek literature; essays on the author assigned for study in competition for the Van Orden Prize.

Required of freshmen in A. B. course A. Five hours weekly throughout the year.

1b. The Greek in English. The Elements of Greek. Greek Reader. English: The English vocabulary; semantics; essays on the author assigned for study in competition for the Van Orden Prize.

Required of freshmen in the A. B. course B. Five hours weekly throughout the year.

2a. Herodotus: Books VII and VIII. **Thucydides:** Book II. **Demosthenes:** *Philippic* III. **Greek Composition. History:** The origin and growth of western civilization.

Required of sophomores in A. B. course A. Four hours weekly throughout the year.

2b. Xenophon: *Anabasis* I and selections. **Herodotus:** Books VII and VIII. **Greek Composition. History:** The origin and growth of western civilization. Outside reading from English translations of Herodotus, Thucydides, and Aristotle's *Politics*, and from standard works on Greek history and Greek political institutions.

Required of sophomores in A. B. course B. Four hours weekly throughout the year.

3a. The Attic Drama: Selected plays of Aeschylus, Sophocles, Euripides, and Aristophanes. Selected Greek classics in English translations. The history of Greek art. Dickinson's *The Greek View of Life*.

Elective for juniors in A. B. course A. Three hours weekly throughout the year.

3b. Homer: Iliad I, II, VI, XXII and XXIV. **Xenophon:** Selections from the Memorabilia. **Plato:** Apology, Crito, and selections. Collateral reading as in 3a.

Elective for juniors in A. B. course B. Three hours weekly throughout the year.

3c. The Greek in English. The Elements of Greek. Greek Reader: Practice in translation at sight.

Elective for juniors and seniors in the B. S. courses. Three hours weekly throughout the year.

4a. Aristotle: The Nicomachean Ethics. **Plato:** The Phaedo; the Republic, Books I, VI and VII. Thesis.

Elective for seniors in A. B. course A. Three hours weekly throughout the year.

For special excellence in this course honors in Greek will be awarded.

4b. Homer: Odyssey VI and IX. **Demosthenes:** Philippic III, and On the Chersonesus. **The Attic Drama:** One tragedy and one comedy. Selected Greek classics in English translations.

Elective for seniors in A. B. course B. Three hours weekly throughout the year.

5. The History of Western Civilization. What civilization is. Man's place in nature. Prehistoric man. Savagery and barbarism. Civilization in its economic aspects. The primary and the fine arts. The beginnings of science. The origin and growth of institutions, political, social and religious. The origin, growth, and progress of western civilization. The world of today.

Optional with mathematics for sophomores in the B. S. courses. Three hours weekly throughout the year.

HISTORY

PROFESSOR RIPTON AND MR. WALDRON

1. Medieval and Modern History. The course begins with a brief study of the Roman Empire and the contribution of the ancient world to modern civilization. Attention is given to events which have had permanent influence upon the historical development of Europe, and to institutions of enduring importance; among these may be named the medieval church, the feudal insti-

tutions, the French monarchy, and the English constitution. The course is designed to form a foundation of historical knowledge which may serve as a preparation for any further study, and to give to the student some acquaintance with methods of historical study and the use of authorities and sources.

Required of sophomores in the B. S. and chemical engineering courses. Three hours weekly throughout the year.

Sophomores in the A. B. course receive instruction in history in the department of Greek.

2. **American History.** A study is made of the period of American discovery and exploration and of the colonial period. The main part of the work, however, begins with an examination of the causes of the American Revolution. The course is guided by text-books and lectures, and much work is done in the library among the sources and authorities.

Elective for seniors and juniors in A. B. and B. S. courses, three hours weekly throughout the year; required of sophomores in the civil engineering and electrical engineering courses, two hours weekly throughout the year.

3. **Modern European History.** This course briefly considers the causes, ideas and progress of the French Revolution and the reconstruction of European politics and society produced by the revolutionary and Napoleonic wars. Attention is then directed to the development of the spirit of nationality, especially in Italy and Germany, and a careful study is made of the political, economic and social progress of Great Britain and the continental states. The course is designed to give a clear understanding of the historical processes by which Europe came into its present condition. It ends with a study of the Great War and its results.

Elective for juniors and seniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

4. **English History.** A general survey of the history of England with emphasis on the rise and growth of the Anglo-Saxon system of self-government and the formation of the British Empire of today.

The course is designed to acquaint the student with the methods of historical study and includes a certain amount of collateral reading.

Elective for juniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

Given to sophomores in 1919-1920.

6. International Law and International Relations. Planned to follow the study of the international relations of the European powers, given in History 3, this course provides a study of the nature of international law, its principles and rules as they have been accepted by the nations of the world, and its continuing historical development.

Elective for seniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

7. Honor Course. This course consists of a discussion of the principles of historical criticism, together with a study of the principal English and American historians. Essays and a thesis are required.

Open to seniors who have complied with the requirements for special honors. Three hours weekly throughout the year.

HYGIENE AND PHYSICAL TRAINING

DR. SMITH AND MR. METZGER

Lectures in hygiene, including a brief course in first aid, are given to all students twice weekly throughout the freshman year.

A physical examination of new students is made at the beginning of the year and corrective exercises are prescribed for the remedy of physical defects. Charts of the physical measurements showing the comparison of the individual with the normal development and hand books containing much valuable hygienic data are furnished upon payment of a small fee. All candidates for college teams are required to pass a satisfactory physical examination before they are allowed to compete in athletic contests.

It is the policy of the college to influence the entire student body to take an active part in athletic sports and gymnastics and not to cater to the exceptional athlete to the exclusion of those who are physically less perfectly equipped.

THE LATIN LANGUAGE AND LITERATURE

PROFESSOR KELLOGG

1. **Livy:** Selections from Books I, XXI and XXII. Roman history. **Tacitus:** *Agricola* and *Germania*. **Cicero:** *De Senectute* or *De Amicitia* or *Selected Letters*. Latin composition.

The work of the first year includes a thorough review of forms and syntax through oral and written prose composition and sight reading. Selections from the three great masters of Roman prose are made the basis for grammatical and literary analysis and interpretation, and also, through lectures and assigned reading, for the study of Roman history through the reign of Trajan.

Required of freshmen in the A. B. courses and the B. S. course B and C. Four hours weekly throughout the year.

2. **Selections from Latin Poetry.** **Terence:** *Adelphoe*. **Plautus:** *Menaechmi* or an equivalent. **Horace:** *Selected Odes* and *Epodes*. **Catullus:** *Selected poems*.

Through lectures on ancient comedy and lyric, and by collateral reading, the student is made acquainted with the history of Roman literature under the Republic and the Empire. The grammatical analysis aims to make familiar the chief characteristics of early and colloquial Latin, and the general economy of poetic diction. The literary interpretation centers chiefly around the influence of Greek life and thought on Roman literature, and the national and personal elements in Latin poetry.

Required of sophomores in the A. B. courses and the B. S. course C. Three hours weekly throughout the year.

3. **Horace** (*Satires* and *Epistles*) and **Juvenal**. **Pliny the Younger** (*Letters*), or **Martial** (*Epigrams*) or **Petronius** (*Trimalchio's Dinner*).

This course, through lectures and assigned reading, continues the history of Roman literature under the Empire. A brief introduction to Roman archaeology (with special study of the Forum Romanum) is given and, in connection with the Pliny, an outline of the private life of the Romans.

Students able to read French or German may receive special assignments under the direction of the department.

Elective for juniors in the A. B. courses and the B. S. course C. Three hours weekly throughout the year.

4. **Lucretius:** Books I, III, V and Selections, with lectures on didactic poetry, the atomic theory, and the philosophic system of Epicurus. During one semester Cicero, *De Officiis*, is read as the basis for a study of ancient Ethics.

As this course is not only for those who elect to study Roman life and literature but also for those who may desire to use Latin in teaching or as an instrument in later research work, special assignments may be given from authors or inscriptions for practice in editing, or the writing of history from the sources.

Elective for seniors in the A. B. courses and the B. S. course C. Three hours weekly throughout the year.

5. **Roman Law.** When a sufficient number of seniors electing course 4 desire it, one or both semesters may be devoted to an introduction to Roman Law, based on the Institutes of Justinian, Robinson's Selections from Roman Law, and Morey's Outlines of Roman Law.

6. **Honor Course.** Studies in the life and works of Vergil.

Open to seniors who have complied with the requirements for candidacy for special honors. Three hours weekly throughout the year.

In general, subsidiary reading is recommended. Equivalents may be substituted in the elective programme at any time, and the order of the subjects as given above may be altered in any one of the four years at the discretion of the head of the department.

MATHEMATICS

PROFESSOR GARIS, ASSISTANT PROFESSOR ROWLAND, MR. HAMLIN,
MR. TERWILLIGER, MR. MORSE, AND MR. MALE

1. **Freshman Mathematics.** This course includes solid geometry, advanced algebra, trigonometry and analytic geometry.

Required of freshmen in the engineering courses. Six hours weekly throughout the year.

1a. **Freshman Mathematics.** This course includes solid geometry, advanced algebra and trigonometry.

Required of freshmen in the A. B., B. S., and pre-medical courses. Four hours weekly throughout the year.

1b. Analytic Geometry. This course includes plane and solid analytical geometry and the more important higher plane curves.

Optional for sophomores in the A. B. and B. S. courses. Three hours weekly throughout the year.

2. Differential and Integral Calculus. This course includes drill in differentiation and integration; the application of derivatives to curves; maxima and minima; the development of series; problems involving rates, curvature, surfaces and volumes; and the application of calculus to problems in mechanics and physics.

Required of sophomores in the civil engineering and electrical engineering courses. Five hours weekly throughout the year.

2a. Differential and Integral Calculus. This course is the same as course 2. Various topics not necessary for the chemist are omitted.

Required of sophomores in the chemical engineering course. Electives for juniors and seniors in the A. B. and B. S. courses who have had course 1b. Three hours weekly throughout the year.

3. Differential Equations. The greater part of this course is given to the treatment of ordinary differential equations and their applications to geometry, electricity, physics, and mechanics. A review of the calculus, especially methods of integration, is required.

Required of juniors in the electrical engineering and chemical engineering courses. Elective for seniors in the A. B. and B. S. courses who have had course 2a. Three hours weekly throughout the year.

3a. Review and Advanced Mathematics. This course gives a review of the algebra, trigonometry, analytical geometry, calculus and analytical mechanics, required of civil engineers during the first three years, showing the logical connection of the several subjects and their application to engineering problems. In connection with this review frequent tests are given. The course also includes some work in advanced calculus.

Required of juniors in the civil engineering course, Option A. Three hours weekly during the first semester.

4. **Advanced Calculus.** This course continues the study of partial differential equations with applications. The other subjects treated are changed from year to year.

Elective for seniors in the electrical engineering and the chemical engineering courses who have had course 3. Three hours weekly throughout the year.

MECHANICS AND PHYSICS

Mechanics

PROFESSOR OPDYKE

1. **Elementary Mechanics.** This course begins with the study of the statics of a particle and of a rigid body, and devotes considerable time to the solution of problems. A study of the fundamental principles of kinetics and of dynamics follows. In this part of the work the elements of calculus are used in the development of theory and in problem work. The course is designed for technical students, and the subject is continued in the junior year by the applied mechanics of the engineering department.

Required of sophomores in the civil, electrical, and chemical engineering courses. Two hours weekly throughout the year.

2. **Analytical Mechanics.** This course is intended for the general student and is broader and more analytical than mechanics 1. The calculus is used throughout, and emphasis is laid on the general physical aspects of the subject.

Elective for juniors and seniors in the A. B. and B. S. courses who have had mathematics 2a. Three hours weekly throughout the year.

3. **Advanced Mechanics.** This course requires a knowledge of differential equations and is a continuation of mechanics 2. The purpose of the course is to make a more complete study of certain parts of the subject from a mathematical and physical standpoint, particularly of certain of the mechanical and physical problems arising in the fundamental measurement of electrical quantities. A discussion of some of the simpler problems of astronomy is included.

Elective for seniors in the A. B. and B. S. courses who have had mathematics 3, physics 1, and mechanics 2. Three hours weekly throughout the year.

Physics

ACTING PROFESSOR RICHTMYER, ASSISTANT PROFESSOR KLEEMAN,
AND MR. REYNOLDS

1. General Physics. This course presents the fundamental facts and laws of physics by means of experimental lectures, problem work, and laboratory practice. The work comprises a study of the laws of motion, energy, properties of matter, wave motion, sound light, electricity and magnetism, with particular reference to the applications of the principles studied to engineering and to the explanation of natural phenomena. In the laboratory the student is offered an opportunity to demonstrate to himself the various fundamental laws in physics, with which he has become acquainted in the corresponding lectures, and to carry out measurements of some of the important physical quantities. The laboratory work is so arranged that the student acquires considerable experience in assembling and building up apparatus.

Required of sophomores in the civil, electrical, and chemical engineering courses. Elective for juniors and seniors in the A. B. and B. S. courses who have had mathematics 2a. Three hours weekly throughout the year.

1a. Elementary Physics. This course is similar to, but less extensive than, Physics 1. It is intended to prepare the student to meet the requirements for admission to the medical department of the university.

Required of sophomores in the pre-medical course. Four hours weekly throughout the year.

2. Heat, Light, and Electricity. This course is a continuation of Physics 1. It includes the various systems of thermometry and temperature measurements; the laws of radiation; a study of physical optics, including polarization, spectra, wave-length measurements, etc.; and, in electricity, an exposition of the fundamental principles of electrical measurements and instruments. The theory is covered by lectures, and in the laboratory the student acquires familiarity with the various processes and

more complicated apparatus essential to the study of physical phenomena.

Required of juniors in the chemical engineering course; elective for seniors in the A. B. and B. S. courses who have had Physics I and Mathematics 2a. Three hours weekly throughout the year.

3. The Electron Theory. This course treats of the nature and properties of ions in gases, solids and liquids; the electronic constants; radio-active changes; the propagation of A, B, and T rays; the ionization of matter by various ionizing agents; and the electron theory of matter. Opportunity for research is provided.

Required of seniors in the chemical engineering course. Elective for seniors in the A. B. and B. S. courses who have had Physics I. One hour weekly throughout the year.

MODERN LANGUAGES

PROFESSOR BARNES, ASSISTANT PROFESSOR STEWART, MR. TILLY,
DR. FUNDENBURG, AND MR. CROWELL

German

1. German 1. Grammar for review and reference, with exercises and drill on syntax; writing and reproduction, with colloquial practice and work in vocabulary building based on a course in German composition. The academic divisions read and discuss works selected from the classics, from nineteenth century drama and fiction, and from historical writings. The reading in the technical divisions is for the most part given over to scientific books and periodicals.

Required of all freshmen who offer German for admission. Five hours weekly throughout the year.

2. German 2. A beginners' course in grammar, composition and reading. Easy selections in prose and poetry, historical matter, a novel and a play are read. While thorough preparation and careful drill are insisted upon throughout, the amount of reading demanded is considerable.

Optional with Spanish for sophomores in the A. B. course A;

optional with French if Spanish is offered for admission, optional with Spanish if French is offered for admission, for sophomores in the A. B. course B, the B. S. courses, the chemical engineering course, and the pre-medical course. Five hours weekly throughout the year.

3. German 3. Advanced composition and independent essays; newspaper reading; an intensive study of Schiller or Goethe, or a course of reading in nineteenth century drama.

Elective in continued and advanced divisions for juniors and seniors in the A. B. and B. S. courses who have had one college year of German. Three hours weekly throughout the year.

4. German 4. Theme writing; history of German literature; studies in the classic period, with extended reading of selected authors.

Elective in the A. B. and B. S. courses for seniors who have had German 3. Three hours weekly throughout the year.

French

5. French 1. A rapid review of the elements of grammar, and the study of syntax and composition; practice in exact translation; a range of reading designed to give a general view of the history of French literature.

Required of all freshmen who offer French for admission. Five hours weekly throughout the year.

6. French 2. A beginners' course in grammar, composition and reading. Easy selections in prose and poetry, historical matter, a novel and a play are read. While thorough preparation and careful drill are insisted upon throughout, the amount of reading demanded is considerable.

Required of freshmen in the A. B. course A. Optional with German if Spanish is offered for admission, optional with Spanish if German is offered for admission, for sophomores in the A. B. course B, the B. S. courses, the chemical engineering course, and the pre-medical course. Five hours weekly throughout the year.

7. French 3. Grammar reviewed; exercises in vocabulary, idioms, and writing in connection with basic texts. This work is

followed by a reading course and special studies in nineteenth century literature.

Elective in continued and advanced divisions for juniors and seniors in the A. B. and B. S. courses who have had one college year of French. Three hours weekly throughout the year.

8. French 4. This course is devoted to the study of some of the classics of the seventeenth century. Selected works of Corneille, Racine, Molière, La Fontaine, and Bossuet are read, together with parts of Lanson's *Histoire de la Littérature Française*. One hour a week is devoted to syntax and composition.

Elective in the A. B. and B. S. courses for seniors who have had French 3. Three hours weekly throughout the year.

Spanish

9. Spanish 1. A course in composition, involving review and continuation of grammatical study, based on narrative texts descriptive of Spain and South America. Newspapers and commercial and geographical articles are read, together with selections from classical and modern drama and recent fiction.

Required of all freshmen who offer Spanish for admission. Five hours weekly throughout the year.

10. Spanish 2. A beginners' course in grammar, composition, and reading. Spanish-American subjects, descriptive, commercial, and geographical, form the basis of the work. A novel and a play are also read.

Optional with German for sophomores in the A. B. course A; optional with French if German is offered for admission, optional with German if French is offered for admission, for sophomores in the A. B. course B, the B. S. courses, the chemical engineering course, and the pre-medical course. Five hours weekly throughout the year.

11. Spanish 3. Advanced composition and commercial correspondence; newspaper reading. A technical essay, one or more classic dramas, and a standard modern novel are read.

Elective in continued and advanced divisions for juniors and seniors in the A. B. and B. S. courses who have had one college year of Spanish. Three hours weekly throughout the year.

12. Spanish 4. Reading of newspapers, periodicals, and commercial matter continued; a survey of the classic and nineteenth century periods in Spanish literature. Selected dramas and novels are read.

Elective in the A. B. and B. S. courses for seniors who have had Spanish 3. Three hours weekly throughout the year.

PHILOSOPHY

ASSISTANT PROFESSOR CHIDSEY

1. History of Philosophy. In this course students without previous acquaintance with philosophy obtain an outline knowledge of its European history from the time of its development among the Ionic Greeks. The work of the first semester covers the history of philosophy down to and including mediaeval philosophy; that of the second semester, from the Renaissance to the present time. There are two lectures and one discussion period each week, together with weekly assignments of reading in a text book. Selected portions of the works of the more important philosophers are read.

Elective for juniors and seniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

2a. An Introduction to the Problems of Philosophy. This course gives a general survey of problems from the theory of knowledge and the theory of reality. The following topics are treated: Our knowledge of the external world, the problem of mind and body, theories of mind, our knowledge of other minds, a comparison of the different views of reality and of truth and error, the problem of good and evil. The treatment is systematic rather than historical. Students are assigned selected passages from the various philosophical classics in illustration of the topics discussed in the lectures. Written exercises and weekly discussions form a part of the course.

Elective for juniors and seniors in the A. B. and B. S. courses. Three hours weekly during the first semester.

2b Logic. This course is an introduction to logic and deals with the following topics: definition of logic and its relation to the other philosophical disciplines, an historical sketch of the

development of logic, deduction, induction, fallacies, scientific method, recent developments in the field of logic. There are lectures and daily discussions, the latter being based upon assignments in a text book.

Elective for juniors and seniors in the A. B. and B. S. courses. Three hours weekly during the second semester.

3a. Ethics. This course gives a systematic view of moral principles and ideals showing how they have developed and how they are related to the biological, social and religious sides of human nature. The course deals with such questions as the meaning of good, right and wrong, moral obligation, institutional life, progress. Lectures and discussions. Required reading and written exercises.

Elective for seniors in the A. B. and B. S. courses who have had course 1 or course 2. Three hours weekly during the first semester.

3b. Present Philosophical Tendencies. This course gives a brief survey of current philosophy with special reference to its applications in religion and morals. The authors to be read during 1919-1920 are Josiah Royce, William James, and Henri Bergson. Lectures, required reading and a thesis.

Elective for seniors in the A. B. and B. S. courses who have had course 1 or course 2. Three hours weekly during the second semester.

4. History and Philosophy of Education. This course is offered to students who intend to enter the teaching profession. There are lectures, prescribed reading and monthly reports. The reading is in the works of leading thinkers in the field of education, from Plato to present day writers. There is little use of a text book, the lectures giving the background necessary for an understanding of the authors read. A thesis is required at the end of the course in which each student is expected to work out his own constructive program.

Elective for seniors in the A. B. and B. S. courses who have had course 1. Three hours weekly throughout the year.

5. Honor Course. An advanced course leading to special honors in this department is offered. When possible this course

is so planned as to meet the special interests of students electing it.

Open to seniors who have complied with the requirements for candidacy for special honors. Three hours weekly throughout the year.

PSYCHOLOGY

ASSOCIATE PROFESSOR MARCH

1. **General Psychology.** This course begins with the study of the elements and the simpler processes and laws of the mind, and continues with a general survey of the field of individual normal psychology.

Required of juniors in the B. S. course in Chemistry. Elective for juniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

2. **Advanced Psychology.** This course will be given for the first time in 1920-21. It will include comparative psychology, social psychology, and psychological theory.

Elective for seniors in the A. B. and B. S. courses who have had course 1.

RHETORIC AND PUBLIC SPEAKING

PROFESSOR MCKEAN

1. **Sophomore Orations.** The work consists of three distinct parts:

a) Formal lectures on the art of public speaking, together with abundant illustrations and class practice on the principles involved.

b) The writing of orations under individual criticism.

c) The delivery of these orations before the class, subject to further criticism for both individual and general instruction.

Supplemental to this work, still further individual criticism and instruction, based on personal needs, is given all students who enter the various contests regularly held under the auspices of the department.

Required of sophomores in the A. B., B. S., civil engineering, electrical engineering, and pre-medical courses. One hour weekly throughout the year.

2. Junior Orations. The work is like that of course 1, but of an advanced character.

Required of juniors in the A. B., B. S., civil engineering, electrical engineering, and pre-medical courses. One hour weekly throughout the year.

3. Senior Orations. The work is like that of course 1, but of a more advanced character.

In addition, instruction is given in the principles of vocal technique as the basis for effective public speaking, and attention is given to individual defects needing correction. The object is to develop in each student the practical mastery of a well-controlled organ of oral expression. This work is graded and opportunity is afforded for supervised practice of the principles involved.

Required of seniors in the A. B. and B. S. courses. One hour weekly throughout the year.

4. Argumentation and Debate. The work consists of two distinct parts:

a) The study of the theory of argumentation and debate, based upon a text-book, and pursued by means of recitations, criticisms, discussions, and informal lectures.

b) Practice in the analysis of subjects for debates, in the preparation of briefs and arguments, and in the more formal debates of the class room.

Considerable attention is given to parliamentary law, and practice is accorded in the conduct of business sessions.

Elective for juniors in the A. B. and B. S. courses. Three hours weekly throughout the year.

5. Advanced Argumentation and Debate. The work is of a more advanced character than that in course 4, and consists of class-room debates; of the discussion of such practical problems as naturally grow out of this work; and of the formal presentation of oral theses, subject to individual criticism and general discussion.

Elective for seniors in the A. B. and B. S. courses who have completed course 4. Three hours weekly throughout the year.

6. Honor Course. Open to seniors who have complied with

the requirements for special honors. Two hours weekly throughout the year.

SPECIAL LECTURES

It is the policy of the college to provide its students with the advantages of frequent lectures by specialists in the various departments of knowledge.

In endowing the Ichabod Spencer Professorship in Philosophy, Mrs. Katherine Spencer Leavitt set aside the sum of \$25,000 to establish a lectureship in memory of her father, the Reverend Ichabod Spencer, D. D., of the class of 1822, to be known as the Ichabod Spencer Lectureship in Psychology.

These lectures are given by distinguished scholars in this department, each year's course being published in book form.

LIBRARY

The library occupies Nott Memorial Hall. It contains fifty thousand volumes, and includes the engineering and scientific library of the late Professor Gillespie, the collection of mathematical works made by the late John Patterson, of Albany; the library of the late Hon. Henry J. Cullen, of the class of 1860, and the library of ancient and classical languages and literatures of the late Professor Tayler Lewis. Additions are made yearly. The income from a bequest of five thousand dollars left by the late Lemon Thomson, Esq., of Albany, of the class of 1850, is devoted to the purchase of books on American subjects, especially history and political science. An alcove, known as the Thomson Alcove, is reserved for these books. By the will of the late Rev. Oscar Blakeslee Hitchcock, of the class of 1852, a bequest of upwards of thirty thousand dollars was left to the college for the purchase of books, manuscripts, etc. A most important accession is the Croes Engineering Library, the gift of Mr. Edgar Beach Van Winkle, of the class of 1860. This section of the library is in the General Engineering Building for the use of the engineering department of the college. The library is classified according to the Dewey decimal system and a dictionary card catalogue, on the Dewey plan, is now being prepared.

One hundred periodicals and the transactions of many learned societies are received.

Library Rules

Hours: 8 A. M. to 6 P. M. and 7:30-9 P. M., from Monday to Friday; 8 A. M. to 12 M. on Saturday.

The library is closed on Sundays and legal holidays.

The library is open during vacation at hours to be announced.

Loan of books: Reference, Cullen and valuable books are not to be loaned.

Reserved books may be loaned over night, i. e., from 9 P. M. to 8 A. M. There is a fine of \$1.00 per day or part of a day for each reserved book overdue.

Periodicals are regarded as reference books.

All other books may be loaned, not more than two at a time, for a period of two weeks, and may be once renewed, unless called for. A fine of ten cents per day is charged for all books overdue, and all library privileges are withdrawn until the book is returned and the fine paid.

THE NATURAL HISTORY MUSEUM

PROFESSOR STOLLER, CURATOR

The Wheatley collection of minerals, presented to the college in 1858, by E. C. Delavan, Esq., contains 4,000 specimens, many of which represent the more valuable forms. This collection has recently been carefully inspected by Dr. D. S. Martin of New York city. All of the specimens have been re-identified and the entire collection has been re-arranged and placed in order for exhibition and for study.

In geology there is a general collection of rocks and minerals, and a considerable collection of the paleozoic rocks and fossils of the New York formations.

In zoology the collection of mounted birds numbers 311 specimens, representing 161 species of the bird fauna of the eastern United States. These have recently been carefully inspected, and re-labelled. Fishes, amphibia and reptiles, especially of the local fauna, are represented by specimens in alcohol. In the depart-

ment of invertebrates the collections of marine animals made by Dr. Harrison E. Webster are extensive, including sponges, corals, worms, crustacea and mollusks, the total number of species represented being over 5,000. The Wheatley collection of shells, presented by E. C. Delavan, Esq., consists of 8,000 specimens.

The botanical collections include a nearly complete set of local flowering plants, the work of Professor Jonathan Pearson. To this there has since been added a complete set of the ferns and fern allies of Schenectady county. The herbarium also includes a considerable number of foreign plants, including representative collections from Germany, Spain, Asia Minor and England, as well as some specimens from Iceland, Norway, France and Switzerland. They have been sorted and distributed in a single series following the latest accepted sequence, that of Engler and Prantl's *Natürliche Pflanzenfamilien*, making the entire collection of some 8,000 or 10,000 specimens readily accessible for reference and study.

The museum is open to the public on Wednesday afternoon and Saturday morning. Visitors may be admitted at other times by making application to the college librarian.

THE LITERARY SOCIETIES

The Philomathean Society, founded in 1793, about two years prior to the founding of the college, and the Adelphean Society, founded in 1796, invite to membership all students specially interested in debating. The societies hold frequent meetings during the autumn and winter months for the discussion of current, social and political questions. A joint debate is held in December in competition for the Allison-Foote prizes, page 126.

RELIGIOUS LIFE

Religious life among the students is cared for through the agency of the Union College Christian Association. This work is under the special care of a secretary who devotes his time to the religious interests of the students. Vesper services are held every Sunday afternoon throughout the year and eminent speakers are secured to conduct these services.

CURRICULA OF COURSES

The numeral after a subject refers to the course as described in the departmental statement; the number in parenthesis refers to the page where the statement is given. The hours show the time given the subject each week in the class room.

A. B. Course A

The full entrance requirement in Greek is required for admission to this course.

Freshman Year

First Semester

Greek 1a, and English.....	(78)	5 hours
Latin 1.....	(82)	4 hours
French 2.....	(88)	5 hours
Mathematics 1a.....	(83)	4 hours
Physiology and Hygiene.....	(81)	2 hours

Total 20 hours

Second Semester

Studies of first semester continued

One credit hour throughout the year is required in Gymnastics

Sophomore Year

First Semester

Greek 2a, and History.....	(78)	4 hours
Latin 2.....	(82)	3 hours
English 2.....	(74)	3 hours
German 2.....	(87)	5 hours
or		
Spanish 2.....	(89)	5 hours
Mathematics 1b.....	(84)	3 hours
or		
General Science 2.....	(77)	3 hours
Rhetoric 1.....	(92)	1 hour

Total 19 hours

Second Semester

Studies of the first semester continued

Junior Year

First Semester

Rhetoric 2.....	(93)	1 hour
Electives.....	(103)	15 hours

Total 16 hours

Second Semester

Studies of the first semester continued

Senior Year*First Semester*

Rhetoric 3.....	(93)	1 hour
Electives.....	(103)	15 hours

Total 16 hours

Second Semester

Studies of first semester continued

A. B. Course B

Greek is not required for admission to this course.

Freshman Year*First Semester*

Greek 1b, and English.....	(78)	5 hours
Latin 1.....	(82)	4 hours
French 1.....	(88)	5 hours
or		
German 1.....	(87)	5 hours
or		
Spanish 1.....	(89)	5 hours
Mathematics 1a.....	(83)	4 hours
Physiology and Hygiene.....	(81)	2 hours

Total 20 hours

Second Semester

Studies of first semester continued

One credit hour throughout the year is required in Gymnastics

Sophomore Year*First Semester*

Greek 2b, and History.....	(78)	4 hours
Latin 2.....	(82)	3 hours
English 2.....	(74)	3 hours
French 2.....	(88)	5 hours
or		
German 2.....	(87)	5 hours
or		
Spanish 2.....	(89)	5 hours

Mathematics 1b.....	(84)	3 hours
or		
General Science 2.....	(77)	3 hours
Rhetoric 1.....	(92)	1 hour

Total 19 hours

Second Semester

Studies of first semester continued

Junior Year

First Semester

Rhetoric 2.....	(93)	1 hour
Electives.....	(103)	15 hours

Total 16 hours

Second Semester

Studies of first semester continued

Senior Year

First Semester

Rhetoric 3.....	(93)	1 hour
Electives.....	(103)	15 hours

Total 16 hours

Second Semester

Studies of first semester continued

B. S. Course A

Freshman Year

First Semester

French 1.....	(88)	5 hours
or		
German 1.....	(87)	5 hours
or		
Spanish 1.....	(89)	5 hours
English 1.....	(74)	3 hours
Mathematics 1a.....	(83)	4 hours
General Science 1.....	(76)	3 hours
Physiology and Hygiene.....	(81)	2 hours

Total 17 hours

Second Semester

Studies of first semester continued

One credit hour throughout the year is required in Gymnastics

Sophomore Year*First Semester*

French 2.....	(88)	5 hours
or		
German 2.....	(87)	5 hours
or		
Spanish 2.....	(89)	5 hours
English 2.....	(74)	3 hours
History 1.....	(80)	3 hours
Mathematics 1b.....	(84)	3 hours
or		
History of Civilization.....	(79)	3 hours
Chemistry 1a.....	(49)	3 hours
Rhetoric 1.....	(92)	1 hour

 Total 18 hours
Second Semester

Studies of first semester continued

Junior Year*First Semester*

Rhetoric 2.....	(93)	1 hour
Electives.....	(103)	15 hours

 Total 16 hours
Second Semester

Studies of first semester continued

Senior Year*First Semester*

Rhetoric 3.....	(93)	1 hour
Electives.....	(103)	15 hours

 Total 16 hours
Second Semester

Studies of first semester continued

B. S. Course B**Freshman Year***First Semester*

Latin 1.....	(82)	4 hours
English 1.....	(74)	3 hours
Mathematics 1a.....	(83)	4 hours

General Science I	(76)	3 hours
Physiology and Hygiene	(81)	2 hours

Total 16 hours.

Second Semester

Studies of first semester continued

One credit hour throughout the year is required in Gymnastics

Sophomore Year

First Semester

French 2	(88)	5 hours
or		
German 2	(87)	5 hours
or		
Spanish 2	(89)	5 hours
English 2	(74)	3 hours
History I	(80)	3 hours
Mathematics Ib	(84)	3 hours
or		
History of Civilization	(79)	3 hours
Chemistry Ia	(49)	3 hours
Rhetoric I	(92)	1 hour

Total 18 hours

Second Semester

Studies of first semester continued

Junior Year

First Semester

Rhetoric 2	(93)	1 hour
Electives	(103)	15 hours

Total 16 hours

Second Semester

Studies of first semester continued

Senior Year

First Semester

Rhetoric 3	(93)	1 hour
Electives	(103)	15 hours

Total 16 hours

Second Semester

Studies of first semester continued

B. S. Course C**Freshman Year***First Semester*

Latin 1.....	(82)	4 hours
French 1.....	(88)	5 hours
or		
German 1.....	(87)	5 hours
or		
Spanish 1.....	(89)	5 hours
English 1.....	(74)	3 hours
Mathematics 1a.....	(83)	4 hours
Physiology and Hygiene.....	(81)	2 hours

 Total 18 hours
Second Semester

Studies of first semester continued

One credit hour throughout the year is required in Gymnastics

Sophomore Year*First Semester*

Latin 2.....	(82)	3 hours
French 2.....	(88)	5 hours
or		
German 2.....	(87)	5 hours
or		
Spanish 2.....	(89)	5 hours
English 2.....	(74)	3 hours
History 1.....	(80)	3 hours
Mathematics 1b.....	(84)	3 hours
or		
History of Civilization.....	(79)	3 hours
Rhetoric 1.....	(92)	1 hour

 Total 18 hours
Second Semester

Studies of first semester continued

Junior Year*First Semester*

Rhetoric 2.....	(93)	1 hour
Electives.....	(103)	15 hours

 Total 16 hours
Second Semester

Studies of first semester continued

Senior Year*First Semester*

Rhetoric 3	(93)	1 hour
Electives.....	(103)	15 hours

 Total 16 hours
Second Semester

Studies of first semester continued

List of Electives for Juniors and Seniors in the A. B. and B. S. Courses

An elective for which there is an insufficient number of candidates may be withdrawn at the discretion of the department.

A total of fifteen hours is required.

Each junior is required to choose two electives to be continued for two years, one of which must be the continuation of a subject previously pursued in college.

Each senior is required to continue, in addition to the elective named in his junior year for continuation, one other junior elective.

The head of a department may direct the choice of electives in other departments, for honor students, to the number of six hours in each year.

Junior Electives

French.....	3 hours
German.....	3 hours
Spanish.....	3 hours
History.....	3 hours
The Bible.....	3 hours
Economics.....	3 hours
Latin.....	3 hours
Mathematics.....	3 hours
Greek.....	3 hours
English.....	3 hours
Biology.....	3 hours
Argumentation.....	3 hours
Mechanics.....	3 hours
Physics.....	3 hours
Philosophy.....	3 hours
Psychology.....	3 hours
Chemistry.....	3 hours
Logic.....	3 hours

Senior Electives

French.....	3 hours
German.....	3 hours
Spanish.....	3 hours
History.....	3 hours
The Bible.....	3 hours
International Law.....	3 hours
Mathematics.....	3 hours
Advanced Philosophy..	3 hours
Advanced Psychology..	3 hours
Ethics.....	3 hours
Latin.....	3 hours
Advanced Argumenta- tion.....	3 hours
Economics.....	3 hours
English.....	3 hours
Biology.....	3 hours
Mechanics.....	3 hours
Physics.....	3 hours
Greek.....	3 hours
History of Education..	3 hours
Chemistry.....	3 hours

Civil Engineering Course

Freshman Year

First Semester

French I.....	(88)	5 hours
or		
German I.....	(87)	5 hours
or		
Spanish I.....	(89)	5 hours
English I.....	(74)	3 hours
Engineering Drawing GE1.....	(56)	3 hours
Mathematics I.....	(83)	6 hours
Physiology and Hygiene.....	(81)	2 hours
Lectures GE5.....	(57)	1 hour

Total 20 hours

Second Semester

French I.....	(88)	5 hours
or		
German I.....	(87)	5 hours
or		
Spanish I.....	(89)	5 hours
English I.....	(74)	3 hours
Engineering Drawing GE2.....	(56)	2 hours
Mathematics I.....	(83)	6 hours
Surveying GE4.....	(56)	3 hours
Physiology and Hygiene.....	(81)	2 hours
Commencement Term Work GE6.....	(58)	

Total 21 hours

One credit hour throughout the year is required in Gymnastics

Sophomore Year

First Semester

Mathematics 2.....	(84)	5 hours
Mechanics I.....	(85)	2 hours
Physics I.....	(86)	3 hours
Chemistry I.....	(48)	3 hours
History 2.....	(80)	2 hours
English 2.....	(74)	2 hours
Surveying GE6.....	(57)	2 hours
Rhetoric I.....	(92)	1 hour
Summer Vacation Work GE13.....	(57)	

Total 20 hours

Second Semester

Mathematics 2.....	(84)	5 hours
Mechanics 1.....	(85)	2 hours
Physics 1.....	(86)	3 hours
Chemistry 1.....	(48)	3 hours
History 2.....	(80)	2 hours
English 2.....	(74)	2 hours
Rhetoric 1.....	(92)	1 hour
Lectures G. E. 12.....	(57)	1 hour
Commencement Term Work GE16.....	(58)	

 Total 19 hours
Junior Year, Option A*First Semester*

Descriptive Geometry CE21.....	(59)	3 hours
Route Surveying CE31.....	(58)	2 hours
Applied Mechanics ME1.....	(69)	4 hours
Topographical Surveying CE21.....	(58)	3 hours
Economic Geology 4.....	(77)	3 hours
Mathematics 3a.....	(84)	3 hours
Rhetoric 2.....	(93)	1 hour
Summer Vacation Work CE33.....	(57)	

 Total 19 hours
Second Semester

Mechanics of Materials CE30.....	(60)	4 hours
Highway Engineering CE26.....	(59)	3 hours
Thermodynamics ME6.....	(70)	2 hours
Geodesy CE24.....	(59)	3 hours
Electric Circuit EE6.....	(70)	3 hours
Hydraulics CE27.....	(61)	3 hours
Rhetoric 2.....	(93)	1 hour
Commencement Term Work CE26.....	(58)	

 Total 19 hours
Senior Year, Option A*First Semester*

Railroad Engineering CE41.....	(62)	3 hours
Stresses CE49.....	(60)	5 hours
Motors CE33.....	(62)	4 hours
Engineering Law CE45.....	(63)	2 hours
Water supply CE55.....	(61)	3 hours
Economics 2.....	(64)	3 hours
Summer Vacation Work CE53.....	(57)	

 Total 20 hours

Second Semester

Building Construction CE46.....	(62)	3 hours
Engineering Design CE48.....	(60)	3 hours
Engineering Law CE50.....	(63)	3 hours
Sewerage and Sewage Disposal CE62	(61)	3 hours
Advanced Structures CE42.....	(61)	2 hours
Architecture CE44.....	(62)	1 hour
Foundations CE52.....	(63)	1 hour
Thesis CE64.....	(64)	2 hours

 Total 18 hours
Junior Year, Option B*First Semester*

Descriptive Geometry CE23.....	(59)	3 hours
Route Surveying CE31.....	(58)	2 hours
Applied Mechanics ME1.....	(69)	4 hours
Topographical Surveying CE21.....	(58)	3 hours
Finance 3.....	(65)	3 hours
Economic Geology 4.....	(77)	3 hours
Rhetoric 2.....	(93)	1 hour
Summer Vacation Work CE33.....	(57)	

 Total 19 hours
Second Semester

Mechanics of Materials CE30.....	(60)	4 hours
Highway Engineering CE26.....	(59)	3 hours
Thermodynamics ME6.....	(70)	2 hours
Administration 4.....	(65)	3 hours
Electric Circuit EE6.....	(70)	3 hours
Hydraulics CE7.....	(61)	3 hours
Rhetoric 2.....	(93)	1 hour
Commencement Term Work CE36.....	(58)	

 Total 19 hours
Senior Year, Option B*First Semester*

Engineering Law CE45.....	(63)	2 hours
Stresses CE49.....	(60)	5 hours
Motors CE33.....	(62)	4 hours
Comparative Politics I.....	(66)	3 hours
Economics I.....	(64)	3 hours
Summer Vacation Work CE 53.....	(57)	

 Total 17 hours

Second Semester

Building Construction CE46.....	(62)	3 hours
Engineering Design CE48.....	(60)	3 hours
Engineering Law CE50.....	(63)	3 hours
Economics 1.....	(64)	3 hours
Comparative Politics 1.....	(66)	3 hours
Architecture CE44.....	(62)	1 hour
Thesis CE64.....	(64)	2 hours

 Total 18 hours
Junior Year, Option C*First Semester*

Descriptive Geometry CE23.....	(59)	3 hours
Route Surveying CE31.....	(58)	2 hours
Applied Mechanics ME1.....	(69)	4 hours
Topographical Surveying CE21.....	(58)	3 hours
Chemistry 5.....	(54)	4 hours
Economic Geology 4.....	(77)	3 hours
Rhetoric 2.....	(93)	1 hour
Summer Vacation Work CE33.....	(57)	

 Total 20 hours
Second Semester

Mechanics of Materials CE30.....	(60)	4 hours
Highway Engineering CE26.....	(59)	3 hours
Thermodynamics ME6.....	(70)	2 hours
Chemistry 5.....	(54)	4 hours
Electric Circuit EE6.....	(70)	3 hours
Hydraulics CE27.....	(61)	3 hours
Rhetoric 2.....	(93)	1 hour
Commencement Term Work CE36.....	(58)	

 Total 20 hours
Senior Year, Option C*First Semester*

Stresses CE49.....	(60)	5 hours
Motors CE43.....	(62)	4 hours
Engineering Law CE45.....	(63)	2 hours
Water Supply CE55.....	(61)	3 hours
Sanitation CE47.....	(63)	2 hours
Economics 2.....	(65)	3 hours
Summer Vacation Work CE53.....	(57)	

 Total 19 hours

Second Semester

Engineering Design ⁷ CE48.....	(60)	3 hours
Engineering Law CE50.....	(63)	3 hours
Heating and Ventilation CE54.....	(63)	3 hours
Sanitary Analysis ⁵	(54)	2 hours
Municipal Sanitation CE58.....	(63)	2 hours
Sewerage and Sewage Disposal CE62.....	(61)	3 hours
Architecture CE44.....	(62)	1 hour
Thesis CE64.....	(64)	2 hours

 Total 19 hours
Electrical Engineering Course**Freshman Year***First Semester*

French I.....	(88)	5 hours
or		
German I.....	(87)	5 hours
or		
Spanish I.....	(89)	5 hours
English I.....	(74)	3 hours
Engineering Drawing GE1.....	(67)	3 hours
Mathematics I.....	(83)	6 hours
Physiology and Hygiene.....	(81)	2 hours
Lectures GE5.....	(68)	1 hour

 Total 20 hours
Second Semester

French I.....	(88)	5 hours
or		
German I.....	(87)	5 hours
or		
Spanish I.....	(89)	5 hours
English I.....	(74)	3 hours
Engineering Drawing GE2.....	(67)	2 hours
Mathematics I.....	(83)	6 hours
Surveying GE4.....	(67)	3 hours
Physiology and Hygiene.....	(81)	2 hours
Commencement Term Work GE6.....	(69)	

 Total 21 hours

One credit hour throughout the year is required in Gymnastics

Sophomore Year*First Semester*

Mathematics 2.....	(84)	5 hours
Mechanics 1.....	(85)	2 hours
Physics 1.....	(86)	3 hours
Chemistry 1.....	(48)	3 hours
History 2.....	(80)	2 hours
English 2.....	(74)	2 hours
Surveying GE11.....	(68)	2 hours
Rhetoric 1.....	(92)	1 hour
Summer Vacation Work GE13.....	(68)	

 Total 20 hours
Second Semester

Mathematics 2.....	(84)	5 hours
Mechanics 1.....	(85)	2 hours
Physics 1.....	(86)	3 hours
Chemistry 1.....	(48)	3 hours
History 2.....	(80)	2 hours
English 2.....	(74)	2 hours
Rhetoric 1.....	(92)	1 hour
Lectures GE12.....	(68)	1 hour
Commencement Term Work GE16.....	(69)	

 Total 19 hours
Junior Year*First Semester*

Advanced Mechanics ME1.....	(69)	4 hours
Electrical Engineering Theory EE1.....	(70)	3 hours
Electrical Engineering Laboratory EE21.....	(71)	4 hours
Mathematics 3.....	(84)	3 hours
Hydraulics CE37.....	(61)	3 hours
Rhetoric 2.....	(93)	1 hour
Summer Vacation Work.....	(68)	

 Total 18 hours
Second Semester

Advanced Mechanics ME2.....	(69)	5 hours
Electrical Engineering Theory EE2.....	(70)	3 hours
Electrical Engineering Laboratory EE22.....	(71)	4 hours
Mathematics 3.....	(84)	3 hours
Rhetoric 2.....	(93)	1 hour

 Total 16 hours

Senior Year*First Semester*

Thermodynamics ME3.....	(69)	3 hours
Electrical Engineering Theory EE3.....	(70)	3 hours
Electrical Engineering Laboratory EE23.....	(71)	4 hours
Economics 2.....	(65)	3 hours
Electives.....	(103)	3 hours
Seminar EE13.....	(71)	1 hour
Literary Essay, Summer Vacation Work.....	(72)	

 Total 17 hours
Second Semester

Thermodynamics ME4.....	(70)	3 hours
Electrical Engineering Theory EE4.....	(70)	3 hours
Electrical Engineering Laboratory EE24.....	(72)	4 hours
Electrical Apparatus Design EE34.....	(72)	3 hours
Electives.....	(103)	3 hours
Seminar EE14.....	(71)	1 hour

 Total 17 hours
Chemical Engineering Course**Freshman Year***First Semester*

Mathematics I.....	(83)	6 hours
Drawing GE3.....	(67)	2 hours
Chemistry 1c, 2a.....	(49, 50)	3 hours
French I.....	(88)	5 hours
or		
German I.....	(87)	5 hours
or		
Spanish I.....	(89)	5 hours
English I.....	(74)	3 hours
Physiology and Hygiene.....	(81)	2 hours

 Total 21 hours
Second Semester

Studies of first semester continued

One credit hour throughout the year is required in Gymnastics

Sophomore Year*First Semester*

Mechanics I.....	(85)	2 hours
Physics I.....	(86)	3 hours
Mathematics 2a.....	(84)	3 hours

French 2.....	(88)	5 hours
or		
German 2.....	(87)	5 hours
or		
Spanish 2.....	(89)	5 hours
History 1.....	(80)	3 hours
Chemistry 2a, 3a.....	(50, 51)	4 hours

Total 20 hours

Second Semester

Studies of first semester continued

Junior Year*First Semester*

Mechanics ME1.....	(69)	4 hours
Mathematics 3.....	(84)	3 hours
Biology 1.....	(48)	3 hours
Physics 2.....	(86)	3 hours
Psychology 1.....	(92)	3 hours
Chemistry 4.....	(52)	4 hours

Total 20 hours

Second Semester

Mechanics ME2.....	(69)	5 hours
Mathematics 3.....	(84)	3 hours
Physics 2.....	(86)	3 hours
Psychology 1.....	(92)	3 hours
Chemistry 6.....	(54)	6 hours

Total 20 hours

Senior Year*First Semester*

Electrical Engineering Theory EE1.....	(70)	3 hours
Electrical Engineering Laboratory EE21.....	(71)	1 hour
Economics 1.....	(64)	3 hours
Mathematics 4.....	(85)	3 hours
or		
Geology 4.....	(77)	3 hours
Chemistry 7.....	(54)	6 hours
Electron Theory, Physics 3.....	(87)	1 hour
Research.....	(55)	2 hours

Total 19 hours

Second Semester

Electrical Engineering Theory EE2.....	(70)	3 hours
Electrical Engineering Laboratory EE22.....	(71)	1 hour
Economics 1.....	(64)	3 hours

Mathematics 4.....	(85)	3 hours
or		
Geology 4.....	(77)	3 hours
Chemistry 8.....	(55)	6 hours
Electron Theory, Physics 3.....	(87)	1 hour
Research.....	(55)	2 hours
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Total		19 hours

Pre-Medical Course

Freshman Year

First Semester

Biology I.....	(47)	4 hours
Chemistry 1b, 2b.....	(49, 50)	5 hours
French I.....	(88)	5 hours
or		
German I.....	(87)	5 hours
or		
Spanish I.....	(89)	5 hours
Mathematics 1a.....	(83)	4 hours
English I.....	(74)	3 hours
		<hr/>

Total 21 hours

Second Semester

Studies of first semester continued

One credit hour throughout the year is required in Gymnastics

Sophomore Year

First Semester

Biology 2.....	(48)	4 hours
Chemistry 3b, 4b.....	(52, 53)	4 hours
Physics 1a.....	(86)	4 hours
French 2.....	(88)	5 hours
or		
German 2.....	(87)	5 hours
or		
Spanish 2.....	(89)	5 hours
English 2.....	(74)	3 hours
Rhetoric I.....	(92)	1 hour
		<hr/>

Total 21 hours

Second Semester

Studies of first semester continued

ATTENDANCE AND STANDING

Registration. Every student must report at the registrar's office at the beginning of each semester and register his college or local address.

Any change of residence during the semester must be reported at once at the registrar's office.

Changes of Course. Students are not permitted to pass from one course to another, or to take any studies out of their regular order, without the specific authorization of the dean of students.

Chapel. Morning worship is held in the chapel every college day and attendance is required of all students.

Reports. A daily record of scholarship and of attendance at class and chapel is kept and a report is sent at the close of each semester to the student's parent or guardian.

Standing. There are four grades of scholarship:— from 9 to 10 inclusive, first grade; from 8 to 8.9, second grade; from 7 to 7.9, third grade; from 6 to 6.9, fourth grade.

A student who receives a mark of 4 to 5.9 is reported as conditioned; below 4, as having failed.

A student who is reported as having failed in any subject must take that subject again in class; or he may be required to make up the subject under an approved tutor, in such manner as the dean of students, after consultation with the department, may designate, and to pass an examination in it at the second conditions examination after the imposition of the mark of failure.

Students of exceptional standing in scholarship, not exceeding ten in number, are eligible for selection by the faculty for stage appointments at graduation.

Absences in General. Absences are entered against a student from the beginning of a semester until he reports his return to the registrar.

It is expected that for consecutive absences permission will be obtained in advance.

Permissions and excuses are given only by the dean of students.

Application must be made between 3 and 5 P. M. on the first Monday following the date of the absence.

Class-room Absences. Attendance at all exercises is required and it is expected that no student will be absent except in case of unavoidable necessity.

No excuse remits any college work. The work lost by reason of excused absence must be made up in a manner satisfactory to the head of the department concerned, unless the nature of the work renders this impossible, in which case the student's grade will suffer.

After a number of unexcused absences equal to three weeks of recitations in any subject, the student is not allowed to continue his work in that subject, but must take it with the succeeding class.

Chapel Absences. Eighteen absences without excuse are allowed each semester. All absences after the first eighteen lower the standing at the rate of one unit for every two absences.

No absences are excused except for protracted illness or for reasons in every way exceptional.

Applications for excuse from chapel for a semester must be made to the dean of students within the first two weeks of that semester.

In the determination of a student's general standing, marks for chapel attendance are counted as the equivalent of a one hour per week recitation. They affect the granting of scholarships and the selection of honor men.

Conditions. If entrance conditions are allowed, they must be made up promptly at the time appointed. Students who have any entrance conditions remaining after the April examinations, are classed as irregular students. Those who fail to remove all entrance conditions before the beginning of the next college year will not be admitted to any of the work of that year. No student who has any conditions unsatisfied at the close of the conditions examinations in September at the opening of the college year, is permitted to continue with his class without the express authorization of the dean of students.

Conditions not removed at the next conditions examination held after their imposition must be made up in class at the first opportunity, and this work takes precedence of the regular work in case of conflict in the schedule. No senior who has failed to

make up all his back work by the end of the first semester of senior year can be recommended for a degree.

Examinations for the removal of conditions occur on the Saturday next preceding the opening of the first semester, and in April, on dates indicated in the college calendar. Registration for these examinations closes at 12 M. on the Saturday next preceding the date set for each. A fee for each examination to be taken must be paid at the time of registration, at the registrar's office.

Students who have been excused by the dean of students from any semester examination are reported "Not examined" and may be examined later, at a time to be approved by the instructor, but such examination cannot be postponed beyond the first conditions examinations after such report. A failure to pass is regarded as a condition and must be made up at the next following conditions examination.

Unless excused by the dean of students, students absent from semester examinations are reported as "Not sustained," or "Failed."

Absence from any appointed examination is regarded as a failure, unless previously excused.

Irregular Students. Students who are seriously deficient in standing may be dropped to a lower class, or if the deficiency is such as to leave a prospect of regaining class standing, may be rated as irregular students. Irregular students have no class relation or class privilege; they are debarred from competition for prizes and from the attainment of special honors.

The evidence that a student's continuance in college is resulting in no advantage to himself, or in harm to others, will occasion his separation from the institution.

EXPENSES

Registration fee	\$ 5.00
Total charge, A. B. courses, per year.....	150.00
Total charge, B. S. courses, per year.....	150.00
Total charge, pre-medical course, per year.....	250.00
Total charge, chemical engineering course, per year.....	250.00
Total charge, civil engineering course, per year.....	250.00
Total charge, electrical engineering course, per year.....	250.00
Graduation fee, including diploma.....	15.00
Graduate courses in engineering, per year.....	100.00
Room rent in dormitories, per year.....	\$50 to 100.00
Conditions examination fee.....	2.00
Extension courses, each subject.....	15.00
Fee for certificate of work done.....	2.00
Fee for certificate of graduation.....	1.00

In the course leading to the degree of Doctor of Philosophy the maximum payment will be \$300 if the degree be earned in five years from the time of registration.

One-half of the total charge is due in advance on the first day of each semester, and is not returnable. Freshmen who pay by check must present certified or cashier's check, or New York draft. *No bills are sent.*

Students must conform to the rules of the treasurer's office regarding registration at the opening of each semester, and will not be admitted to any classes or laboratories until the total charge is paid.

No deductions are made because of absence from college.

No part of a semester bill will be refunded for any cause.

Damage done by students to college property will be charged to their account.

No degree, certificate or dismissal will be given to any student until his bills are paid.

Board can be procured for \$5 to \$7 a week.

It is the custom of the student body to levy an annual tax of \$21, of which \$14 are payable at the time of registration for the first semester and \$7 at the time of registration for the second semester. This money is used for the support of the different branches of athletics and other college activities.

College Rooms

The college has three steam-heated dormitories. Most of the rooms are arranged in suites of two; they are rented at prices varying from \$50.00 to \$75.00 per year unfurnished and \$65.00 to \$90.00 per year furnished for each student occupying a room. A limited number only are furnished. Students about to enter college who wish rooms in the dormitories should make early application to the assistant treasurer for a list of rooms giving location and price. No room is secured until a lease is signed and filed in the college office; a student must occupy the room for which he signs, as transfers are not allowed. The rooms are cared for by competent persons, employed and paid by the college; each occupant of a college room will be held responsible for any damage done to the room. At the end of the college year students giving up their rooms for any reason whatsoever must remove all furniture and property from their rooms not later than the Saturday following commencement day, as after this time the dormitories will be closed until the Saturday before the first registration day of the fall semester. The dormitories will also be closed during the Christmas recess.

Students leaving property in their rooms during the vacations do so at their own risk.

Students are required to room in the college dormitories, or if no college rooms are available, in places approved by the college. A list of such rooms may be found at the college office. Students who live at home or with relatives, or who are provided with a room in a private house in return for services rendered are excused from this rule.

Employment Bureau

The Christian Association acts as a bureau with the object of giving assistance to students who desire employment for the purpose of meeting the expenses of a college education. A considerable number of students meet the expense of board by acting as waiters in the various restaurants and boarding houses in the city. Others find employment as clerks in stores on Friday evenings and Saturday afternoons; others in caring for furnaces and in other work about private residences. Applications for the assistance of the bureau may be addressed to the secretary of the faculty.

SCHOLARSHIPS

Funds given especially for this purpose enable the college to offer aid to a number of students each year, as follows:

General Scholarships. General scholarships are available for students in the A. B., Ph. B. and B. S. courses.

Scholarships covering a part or the whole of the tuition charges are granted to students upon the following conditions:

1. The declaration of a purpose to remain in Union College until graduation.

2. An acknowledgment that the aid received is regarded as a debt of honor, to be paid as soon as possible after leaving college.

3. The presentation of satisfactory evidence of financial need.

Scholarship aid will be withdrawn temporarily upon the failure of the student to be sustained in any subject, or upon his failure to maintain an average grade of eighty per cent. in the studies of any term, and after it has been withdrawn for two successive semesters it will not be renewed.

Any serious breach of college discipline, evidence of moral delinquency, or repeated unnecessary expenditures will also result in the withdrawal of scholarship aid.

Credentials necessary for admission to another college will not be given to any scholarship student until he has repaid to the college treasury the full amount of scholarship aid received.

Application blanks will be provided by the secretary upon request.

John David Wolfe Memorial Scholarships. The income of a fund of fifty thousand dollars established by the generosity of Miss Catharine Lorillard Wolfe is designed to aid students from the southern states.

These scholarships are available for students in all courses and are governed by the conditions named above.

Application blanks will be provided by the secretary upon request.

Levi Parsons Scholarships. A generous benefaction by the late

Hon Levi Parsons, of Gloversville, N. Y., maintains several scholarships in each class, yielding one hundred and fifty dollars a year each.

Among applicants, preference is given:

First, to blood relatives of the founder, bearing his name and living in the county of Fulton, Montgomery or Hamilton, in the State of New York, and especially to those bearing his name and living in Gloversville or Johnstown, Fulton county.

Second, to applicants living in the following places, according to the following order:

1. The city of Gloversville, Fulton county.
2. The city of Johnstown.
3. The township of Johnstown.
4. The county of Fulton.
5. The adjoining counties of Montgomery and Hamilton.
6. The blood relatives living in any other part of the United States.

Nomination to scholarships is made by the board of directors of the Gloversville Free Library; and the nominees must satisfy the college requirements for admission. Applications are received by the directors of the Gloversville Free Library, Gloversville.

The continuance of these scholarships is subject to the rules stated on page 118 concerning the withdrawal of the general scholarships of the college.

Thomas Armstrong Scholarships. The late Thomas Armstrong, of Plattsburg, N. Y., provided for the grant of five scholarships to residents of Clinton county, sons of practical farmers.

Nominations to these scholarships are made by the board of supervisors of Clinton county, and the yearly value of each scholarship is not to exceed two hundred dollars.

R. C. Alexander Prize Scholarship. The sum of four thousand dollars has been given in memory of the late Robert Carter Alexander, of the class of 1880, and a life trustee of the College, to be devoted to the establishment of a scholarship for the encouragement of classical studies.

The income of this fund, amounting to two hundred dollars

per year, is awarded as a prize scholarship, upon the following conditions:

1. Candidates must be students in the classical course, and of approved moral character.

2. They must be free from conditions and must have obtained an average of at least eighty per cent. in the studies of the first semester of the freshman year.

3. They must pass successfully a special examination at the close of the freshman year in each of the following subjects: Latin, Greek, mathematics, English composition, and either French or German. These examinations will be based upon the work of the freshman year.

4. The award will be made to the candidate obtaining the highest general average in these examinations and in all the previous work of the college course.

5. The prize scholarship will be forfeited upon evidence of moral delinquency, or upon failure to maintain an average grade of ninety per cent. in the work of any subsequent term. The scholarship, once lost, cannot be regained, but will be awarded, upon the above conditions, to a student in the next entering class.

6. All questions pertaining to the administration of this scholarship will be determined by a committee composed of the president of the college, the chairman of the scholarship committee of the faculty, and a member of the board of trustees.

Horace B. Silliman Scholarships. Three scholarships were founded by the late Horace B. Silliman, of the class of 1846, giving to each recipient the income from two thousand dollars annually.

These scholarships are awarded to active members of the college Young Men's Christian Association by a committee composed of the president, the dean of the faculty, and the president of the Young Men's Christian Association, under such rules and conditions as may be determined by such committee, preference being given to students in the classical course.

The award is made to one student annually at the close of the freshman year.

*This scholarship is now held by Leslie W. Jones, of the class of 1921.

Daniel F. Pullman Scholarship. The late Daniel F. Pullman, of Knox, Albany county, New York, provided in his will for the establishment of a scholarship of the value of \$120 a year, to be given to a student in the classical course.

The award is made by the faculty, and in accordance with the terms of the will preference is given to members of the Methodist Episcopal Church.

Alumni Scholarships. Application for appointment to these scholarships must be made before September 1. The conditions with respect to college standing governing the award and retention of the general scholarships of the college apply to this scholarship also.

Class of 1895 Scholarship. A fund has been given by the class of 1895 which provides for the grant of a scholarship of a yearly value not to exceed one hundred dollars. The award is made by the faculty and, in accordance with the wish of the donors, preference will be given to descendants of members of the class.

Graduate Council Scholarships. A fund is given by members of the class of 1887 which provides for two scholarships of the yearly value of one hundred dollars each. These scholarships are subject to the general rules of the college as regards class standing and personal conduct. (Page 113.) The award is made by the donors on nomination by the secretary of the council.

Genesee Valley Scholarships. The Alumni Association of the Genesee Valley generously offers a scholarship to residents of towns included in the active membership of the association.

Candidates should make application to the secretary of the Alumni Association.

The tenure of the scholarship is subject to the general scholarship rules of the college as published in the annual catalogue.

Daniel Vedder Scholarship. By the will of the late Daniel Vedder, of Schenectady, a scholarship has been established, of the annual value of two hundred dollars.

The scholarship is awarded by the faculty, and is given to a student who is preparing to enter the Christian ministry.

The holder must maintain an average standing of ninety per

cent., and must pledge himself to abstain from the use of intoxicating liquors and tobacco.

If none of the candidates meets in every respect the conditions stated in the will of the donor, the scholarship will be awarded in such a way as to carry out as fully as possible the wishes of the founder.

The award is made at the end of the freshman year.

Ichabod Spencer Scholarship Fund. This fund is to be used for general scholarship aid, was established by Mrs. Catherine Spencer Leavitt in memory of her father, the Rev. Ichabod Spencer of the class of 1822. The proceeds are used at the discretion of the trustees to aid worthy students in securing an education at Union College.

Law School Scholarships. Applicants for these scholarships, described below, must register with the dean of the faculty by May 15 of senior year.

John K. Porter Memorial Scholarships. A fund given by Mrs. John K. Porter, in memory of her husband, is designed to assist students who, after graduating from college, pursue the study of law. The fund provides, at present, for three scholarships of ninety dollars each. The awards are made at commencement to seniors chosen by the faculty.

Gilbert M. Spier Memorial Scholarship. A fund given by Mrs. Glover C. Arnold, in memory of her father, the late Judge Gilbert M. Spier, provides another scholarship for students of law who go from Union College to the Albany Law School, another department of Union University. The sum of ninety dollars is awarded at commencement to the senior chosen by the faculty, the choice being made on the basis of excellence in historical studies.

William C. Saxton Scholarships. By the will of Anna C. Saxton the sum of ten thousand dollars was bequeathed to Union College for the purpose of founding the William C. Saxton Fund. This fund provides for the payment of the tuition of one student in each of the three classes in the Albany Law School.

These students must be graduates of Union College and are appointed, one each year, by the faculty of Union College.

Erie County Scholarships. Through the generosity of Mr. Thomas B. Lockwood of Buffalo, Union College is enabled to offer a certain number of scholarships annually to graduates of registered high schools in Erie county. The award is made by the admissions committee on the basis of the candidate's school record.

The tenure of the scholarships is subject to the general scholarship rules of the college as published in the annual catalogue.

Chester C. Thorne Scholarship. The late Rev. Chester C. Thorne, of the class of 1857, has endowed a scholarship of the annual value of two hundred dollars. The scholarship will be awarded to a student in one of the academic courses at the end of his junior year; it is given on the basis of character and financial need and is awarded by the faculty.

The tenure of the scholarship is subject to the general scholarship rules of the college as published in the annual catalogue.

General Electric Company Scholarships. The General Electric Company has made provision for three scholarships, nominations to which are made by the company. One incumbent will be named each year until three scholarships are in effect. The scholarships are intended primarily for the encouragement of electrical engineering studies, but the company may appoint students in any course. The scholarships provide for tuition fees.

American Locomotive Company Scholarship. The American Locomotive Company has provided a fund the income from which is used for one or for two scholarships, as the company may decide. Nominations for the award of these scholarships are made by the company on the basis of the grade of work done by the candidate in school or in college. The scholarships are open to students in any course, but will be awarded only to such candidates as are sons of employees of the company.

Cornelia Veeder Scholarship. By the will of Miss Cornelia Veeder, the sum of four thousand dollars is given to Union College, the income "to be expended annually in the support and

education of some poor and worthy student in said college." The award is made by the faculty.

The tenure of the scholarship is subject to the general scholarship rules of the college as published in the annual catalogue.

William L. Oswald Scholarship. A fund of five thousand dollars is provided by the will of William L. Oswald, the income from which is to be applied to "the support and education of a young man of proper character and habits for the duties and calling of a minister of the Gospel, a candidate of suitable qualifications residing in Watervliet, N. Y., to be preferred." The award is made by the faculty.

The tenure of the scholarship is subject to the general scholarship rules of the college as published in the annual catalogue.

PRIZES

The following prizes are awarded from funds given especially for this purpose:

Blatchford Oratorical Medals. The Hon. Richard M. Blatchford, LL. D., of New York city, founded oratorical prizes, consisting of two gold medals of the value of the interest on \$1,000, which are given to the two members of the graduating class who deliver at commencement the best orations, "regard being had alike to their elevated and classical character and to their graceful and effective delivery." These medals are awarded by a committee appointed by the trustees, and are presented at the close of the exercises.

Warner Prize. The Hon. Horatio G. Warner, LL. D., of Rochester, N. Y., founded an annual prize to be presented at commencement to the "graduate of Union College, classical or Latin-scientific course, who shall reach the highest standing in the performance of collegiate duties, and also sustain the best character for moral rectitude and deportment, without regard to religious practice or profession." The prize is a silver cup and is awarded by the faculty.

Ingham Prize. The Hon. Albert C. Ingham, LL. D., of Meridian, N. Y., founded an annual prize of the interest of \$1,000 (in the form of plate, or medal, or money, or both medal and money, as preferred), to be awarded at commencement to that senior connected with the college for not less than two years who shall offer the best essay on one of two assigned subjects in English literature or history.

The essay must be typewritten, and must contain not less than 4,000 nor more than 4,500 words. Its signature (fictitious) and the writer's real name must be enclosed in a sealed envelope; the signature and the name of the prize being given on the outside. The essay, with the note, must be presented by noon on the first day of May.

Allen Essay Prizes. The Hon. William F. Allen, LL. D., of Oswego, N. Y., established a fund of \$1,000, the interest of which

is devoted to prizes for the best three essays on any subject, submitted by members of the senior class.

The essay must be typewritten, and must contain not less than 2,500 nor more than 3,000 words, and must be signed and presented (with note, as in the case of the Ingham essay) by noon on May 1st. The prizes are awarded at commencement.

Oratorical Prizes. Prizes are presented at commencement to the two juniors and the two sophomores who deliver the orations best in composition and delivery on the occasion of prize speaking in commencement week. Four juniors and four sophomores are selected for this competition by a committee of the faculty on the fifteenth of April. Candidates must be in full standing on appearance before the committee.

Allison-Foote Prizes. Mr. George F. Allison, of New York city, and the late Wallace T. Foote, of Port Henry, N. Y., founded a prize for the encouragement of debate in the literary societies. The prize consists of \$100 in cash, and is awarded as the result of a public competition between representatives of the Adelpic and Philomathean Literary Societies. Fifty dollars is awarded to the society presenting the strongest argument. The remaining \$50 is awarded to the debater who makes the best single speech, regardless of his society relations. Contestants must have engaged in at least ten debates in their respective societies during the college year immediately preceding. All further details are left to the determination of a committee, consisting of the president, the dean of the faculty, and the professor of rhetoric.

Goodrich-Duane Prizes. Two prizes, of \$30 and \$20, are awarded to the best speakers in an extemporaneous debate held in commencement week in each year. A general topic is previously announced, and the particular subject of debate is given on the evening of the contest. The competition is open to students of all classes.

The first prize is given by Mr. James A. Goodrich, of the class of 1879, and the second prize by Dr. Alexander Duane, of the class of 1878.

Daggett Prize. In 1899 Miss E. Josephine Daggett bequeathed

to Union College the sum of \$1,000, the interest of which is devoted to a prize for conduct and character, without respect to scholarship, to be given at Commencement to a senior who shall have passed through a full course of four years at the college.

Bailey Prize. A silver cup, of the value of \$50, has been offered by Dr. Frank Bailey, to be awarded annually to that member of the senior class who has rendered the greatest service to the college in any field. In awarding this prize, consideration is given to any effort resulting in conspicuous improvement in the conduct of athletic sports or in the character of undergraduate publications; in the increase of college enthusiasm or the elevation of the tone of college life; in the advancement of the interests of the college among preparatory schools or in the community as a whole; or in any addition to those things which bring honor to the name of Union.

Pullman Prizes. Mr. Daniel F. Pullman, of Knox, Albany County, New York, bequeathed to Union College the sum of \$2,000 to found two annual prizes.

The Pullman Classical Prize. This prize of \$40 is given to that member of the Methodist Episcopal Church in the graduating class who, in an attendance of three years, has attained the highest standing in scholarship in the classical course.

The Pullman Engineering Prize. This prize of \$40 is given to that member of the graduating class who has taken the full course in the engineering department and who has attained the highest standing in that course, preference being given to members of the Methodist Episcopal Church.

Van Orden Prize. The Van Orden Prize was founded by the late Wessel Ten Broeck Van Orden in memory of his uncle, Wessel Ten Broeck Van Orden, of the class of 1839. It is awarded annually to a member of the freshman class for excellence in English composition. The basis of the award is the class work in rhetoric and composition, and a special essay. The essays are based upon certain works of English literature, the titles of which are announced early in the fall. The prize is the interest on \$1,000, and is awarded partly in books and partly in money.

Freling H. Smith Prize in History. Mr. Freling H. Smith, of the class of 1865, has founded an annual prize of fifty dollars in the department of history. The prize is awarded at commencement and is open to seniors who are qualified to take special honors in history. The award is based upon a thesis written under the direction of the department of history. Candidates must register with the head of the department not later than November 1.

Debate Medals. Intercollegiate debate medals are awarded by the Union College Debating Council each year to those students who worthily participate in at least two intercollegiate debates during the academic year.

Underclass Debate Prize. A prize of \$10 is awarded to the member of either debating teams in the Sophomore-Freshman debate who makes the best single speech, regardless of class victory.

Ernst J. Berg Scholarship Cup. A silver cup is offered by Dr. Ernst J. Berg, to be awarded at the opening of the fall term, to that fraternity or like organization whose scholarship during the preceding year was highest.

Fuller Prizes in Chemistry. In 1914 Dr. Robert M. Fuller, of Schenectady, N. Y., founded two prizes, consisting of a silver, and a gold medal, of the value of twenty dollars and thirty dollars respectively. These medals are awarded annually; the silver medal to that member of the sophomore class whose work of the first two years in the department of chemistry has given the greatest promise of a successful career in that subject; the gold medal to that member of the senior class whose standing in the department has been of high grade, and who has shown the most ability in original experimental work. The medals are awarded by a committee composed of the president, the professor of chemistry, and one other member of the faculty appointed by the president.

DEGREES AND HONORS

The candidate for a degree must have paid all dues to the college treasurer, and returned all books borrowed from the college library; he must also attend the conferring of degrees, or be expressly excused therefrom. The candidate for a bachelor's degree must have entered college not later than the beginning of the first senior term.

Degrees for Resident Study

The degrees of the college are conferred by authority of the board of trustees upon candidates who have successfully completed courses of resident study, as follows:

The Bachelor's Degree. The degree of Bachelor of Arts (A. B.) will be conferred upon candidates who have successfully completed Course 1, page 30; the degree of Bachelor of Science (B. S.), upon those who have successfully completed Course 2, page 30; the degree of Bachelor of Science in Civil Engineering (B. S. in C. E.), upon those who have successfully completed Course 3, Option A, B, or C, pages 30-31; the degree of Bachelor of Science in Electrical Engineering (B. S. in E. E.), upon those who have successfully completed Course 4, page 31; the degree of Bachelor of Science in Chemistry (B. S. in Ch.), upon those who have successfully completed Course 5, page 31.

The Master's Degree. The degree of Master of Science in Civil Engineering (M. S. in C. E.) will be conferred upon candidates who have successfully completed Course 7, first division, page 31; the degree of Master of Science in Electrical Engineering (M. S. in E. E.), upon those who have successfully completed Course 7, second division, page 31.

The Doctor's Degree. The degree of Doctor of Philosophy (Ph. D.) will be conferred upon students of electrical science who fulfill the requirements stated on page 73.

Honors

All commencement prizes are limited to A. B. or B. S. students who have entered at or before the beginning of the senior year, and who are in full standing at the close of the first semester;

and to engineering students entered likewise and in full standing at the close of the first semester, in both the engineering course and the English department of the B. S. courses.

Commencement Appointments. These honors may be assigned to ten seniors, as stated under Standing, page 131. Provisional appointments are made at the close of the first semester of senior year, and become final if those who receive them retain the same relative rank to the end of their course. Under present regulations, no other person can become competitor for the Blatchford Oratorical Medals.

Seniors not in full standing at the close of the first semester are ineligible to a Commencement appointment.

Students who receive Commencement appointments as the result of the second semester's work are excused from speaking unless the faculty direct otherwise.

The Valedictory. This honor is awarded to the senior of highest standing among the ten receiving Commencement appointments.

Special Honors. Special honors are also given at graduation under the following conditions: Any department may offer a course, approved by the education committee, leading to special honors. The head of a department may direct the choice of electives in other departments, for honor students, to the number of six hours in each year. The time of registration for honors will be determined separately for each department. The candidate for special honors must have attained in all the studies of the department in which he tries for honors a rank of not less than ninety per cent. of the maximum. The evidence that he has successfully completed the extra course prescribed for him must be submitted not later than June 1st of the senior year to the faculty, who shall decide in each case whether the work is worthy of an honor. The honors attained are stated in the diploma, and the names of the students who take honors are printed on the Commencement programme. No student may try for honors in more than two departments.

Phi Beta Kappa. At the beginning of the second semester of the senior year, one-third of the members of the graduating class

in the classical course, candidates for the degree of Bachelor of Arts, may be elected to membership in the Phi Beta Kappa society. The election is based upon scholarship and character and is given, as a rule, to the men who stand highest in scholarship in their class.

The Alpha of New York chapter was established in 1817; and ever since that time election to the society has been one of the highest distinctions to be gained by scholarship.

Sigma Xi. Election to the honorary scientific society of Sigma Xi is one of the honors open to seniors of marked ability in the scientific and engineering departments. Membership is confined to the faculty, senior candidates for graduation, and alumni. The election occurs during the latter part of the senior year and selections are made on the basis of high general scientific or engineering ability and particularly as a mark of promise of ability in research and independent work.

The society was founded at Cornell University in 1886 and has chapters at thirty leading colleges and universities of the country. The Union chapter was established in 1887, since which time about one hundred members have been elected by this chapter.

DEGREES CONFERRED

AT THE

**ONE HUNDRED AND TWENTY-THIRD ANNUAL
COMMENCEMENT**

JUNE 9, 1919

Honorary**LL. D.**

Leonard Wood.....Chicago, Ill.

D. D.

John Van Schaick, Jr.....Washington, D. C.

William A. Waddell.....Sao Paulo, Brazil

Sc. D.

Alexander Duane.....New York City

Thomas Ordway.....Albany

Willis Rodney Whitney.....Schenectady

L. H. D.

John Halliday Denbigh.....New York City

M. A.

Charles J. McMullen.....Schenectady

Thomas Augustus Watson.....East Braintree, Mass.

In Course**M. A.**

Harlan Barrett Allen.....Hobart

Shiv Narayan.....Poona, India

M. S. in E. E.

Walter R. G. Baker

Thomas A. E. Belt

Jesse W. M. Dumond

Carl Mitchell Gilt

Edwin Bernard Kurtz

Harold C. Leonard

Fred Orville McMillan

Bruce Deobler Mickey

Alfred Leslie Pfeil

Fred Lloyd Poole

James John Smith

Charles Van Orden Terwilliger

Jesse Paul Youtz

B. A.

Edward Madison Cameron, Jr.....Albany
 Spencer Brownell Eddy.....Saratoga Springs
 (As of the Class of 1918)

B. S.

Alexander Winfield Trainor.....West Leydon
 (As of the Class of 1912)
 John Sherburne, 2d.....Amsterdam
 (As of the Class of 1914)
 Harry Ames Calkins.....Cohoes
 Bernadotte Perrin Lester.....Saratoga Springs
 Sidney Wells Talbot.....Schenectady
 (As of the Class of 1918)

Class of 1919**A. B.**

Pierre MacDonald Bleecker.....Jersey City, N. J.
 Charles Albert Brind, Jr.....Albany
 Roland Eugene LaGrange.....Schenectady
 Raymond Dewey Metzner.....Glens Falls
 Henry Elchanon Rosenberg.....Glens Falls
 Brenton Thompson Taylor.....Hartford

Ph. B.

Karl Hashagen Gorham.....Lenox, Mass.

B. S.

Walter Livingston Stevens Alexander.....Schenectady
 Edward Henry Beaver.....Schenectady
 Forrest Edwin Carr.....Richmondville
 Robert Cameron Cockburn.....Watervliet
 Francis William Egan.....Fort Plain
 Roland Van Ingen Kathan.....Schenectady
 William James McGauley.....Schenectady
 Harry Hazleton Newton.....Ballston
 Oscar Joseph Schultz.....Albany
 Madison Lewis Sheely.....Albany
 Winfield Quenten Swart.....Schenectady

John Wheeler Van Loan.....	Athens
Isadore Yavitz.....	Schenectady

B. S. in C. E.

Glenn Lamond Forrest.....	Cold Brook
Harold Van Dyke Gulick.....	Brooklyn
Warren George Kelsey.....	Portland, Me.
Herman Lefkowitz.....	Rochester
Harold Ransom Tallmadge.....	Schenectady

B. S. in E. E.

Edward Spencer Cassedy.....	Gloversville
Eugene George Crippen.....	Schenectady
Carroll Calkins Grinnell.....	Elmira
Edward Harvey Hall.....	Luzerne
Harold Asahel Hawley.....	Waterford
Ching Lee Hsun.....	Nanchang, China
Allan McLean.....	Schenectady
George Blaine Parker.....	Amsterdam
Lloyd Lester Parker.....	North Adams, Mass.
Frederick William Reynolds.....	Massena Springs
Samuel Robinson.....	Schenectady
Sanford Oatman Schamberger.....	Gloversville
George Russell Smith.....	Sybertsville, Pa.
De Witt Smith Snell.....	St. Johnsville
Norman George Zautner.....	Albany
Jacob Zehfuss, Jr.....	West Albany

AWARDS 1919

Commencement Appointments

Charles Albert Brind, Jr.....	Albany
Roland Eugene La Grange.....	Schenectady
Raymond Dewey Metzner.....	Glens Falls
George Blaine Parker.....	Amsterdam
Henry Elchanon Rosenberg.....	Glens Falls
Sanford Oatman Schamberger.....	Gloversville
Winfield Quenten Swart.....	Schenectady
Harold Ransom Tallmadge.....	Schenectady
Brenton Thompson Taylor.....	Hartford
John Wheeler Van Loan.....	Athens

Commencement Orators

Raymond Dewey Metzner.....	The Tongue of Progress
Winfield Quenten Swart.....	The Call to a World-Task
Brenton Thompson Taylor.....	The Menace of Materialism
Henry Elchanon Rosenberg.....	Individualism

Valedictory

Special Honors

In English.....	Henry Elchanon Rosenberg.....	Glens Falls
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Prizes

Blatchford Oratorical Medals. 1st, Winfield Quenten Swart;
2nd, Brenton Thompson Taylor.

Warner Prize. Henry Elchanon Rosenberg.

Prizes for Oratory. Jerome S. Lovenheim, William McCleary.

Allison-Foote Prizes. Won by the Philomathean Society and
Winfield Q. Swart.

Daggett Prize. Bernadotte P. Lester.

Pullman Prizes. Classical, Roland E. La Grange; Engineering,
George B. Packer.

Bailey Prize. Brenton T. Taylor.

Van Orden Prize. Hugh C. Campfield.

Goodrich-Duane Prize. Winfield Q. Swart. Roland E. La Grange.

Horace B. Silliman Scholarship. Henry Denham Hunt.

John K. Porter Memorial Scholarships. Charles A. Brind, Roland E. La Grange, Bernadotte P. Lester.

Speer Memorial Scholarship. Raymond D. Metzner.

Saxton Memorial Scholarship. Brenton T. Taylor.

Fuller Prizes in Chemistry. Madison L. Sheely, Guy Bartlett.

Ernst J. Berg Prize. Delta Phi Fraternity.

Phi Beta Kappa

Henry E. Rosenberg

Brenton T. Taylor

Sigma Xi

Active Members

Jesse W. Dumond

Samuel Robinson

Fred W. Reynolds

James J. Smith

Associate Members

Henry V. Putman

Harold R. Tallmadge

Madison L. Sheely

John W. Van Loan

EVENING COURSES

NOT CREDITED TOWARD ANY DEGREE

These courses are given in co-operation with the Educational Committees of the General Electric Company and the American Locomotive Company, and are open to employes of the companies and to the general public. Proper high school or technical preparation is required for admission. Each course consists of thirty lessons. The classes meet once each week during the course. Certificates are given for the satisfactory completion of a course.

During the year 1919-1920 the following courses are offered:

Greek — Elements, Etymology, Reading

Latin — Elementary, Roman Civilization, Literature

Spanish — Elementary, Intermediate

German — Elementary, Intermediate, Commercial and Technical

French — Elementary, Continuation, Intermediate

English — Recent literature, Shakespeare, English composition

American History, Economics, Psychology

Differential and Integral Equations — Two year course

Differential Equations — One year course

Physics, Geology, Electron Theory

General Chemistry, Organic Chemistry, Analytical Chemistry

Fundamentals of Electrical Engineering, Electrical Engineering

Surveying, Heating and Ventilation

Applied Mechanics, Reinforced Concrete, Applied Machine Design

Steam Power, Hydraulics

Fundamental Locomotive Design — Elementary course

Fundamental Locomotive Design — Advanced course

Public Speaking

ALBANY MEDICAL COLLEGE

The Albany Medical College was organized in 1838 and incorporated in 1839, in which year its first class was graduated. Pursuant to the Act of Incorporation of Union University in 1873, Union College (Schenectady), the Albany Medical College, Albany Law School, Dudley Observatory and later the Albany College of Pharmacy, united in constituting Union University. Each institution, retaining its own property, was separately managed by its own Board of Trustees. To meet modern requirements for university control and in order to effectuate the provision that the Albany Medical College was the Medical Department of the University, its Trustees in 1915 appointed an Executive Committee of thirteen to control the educational policy of the Medical School, nine members of which are Governors of Union University. Also upon request of the Trustees of the Medical College the Governors of Union University have appointed a similar committee identical in personnel.

The commencement exercises for the year 1918 were held at Union College in connection with Union College commencement, thus emphasizing the university connection.

The Albany Medical College has the scientific and clinical direction of major and minor services of the Albany Hospital by reason of the fact that the heads of clinical and laboratory departments of the medical school are the heads of corresponding departments in the hospital and its dispensaries. With these changes, the Albany Medical College is prepared to furnish instruction which meets the highest demands of modern medical education.

The Executive Faculty is composed of the Chancellor of the University, the heads of the five major departments of medicine, two special departments and the Dean. The advantage of such a small working faculty is apparent.

The requirements for admission, promotion and graduation have been raised, and the classes are restricted in number so that the important personal relation between student and teacher may be maintained.

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EDMUND N. HUYCK

*JAMES C. FARRELL

GEORGE ALEXANDER

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ELLIS J. STALEY

HON. JAMES R. WATT, Mayor of Albany

HON. EDWARD EASTON, JR., Recorder of Albany

Ex-officio

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ALDEN CHESTER

ROBERT OLCOTT

LUTHER H. TUCKER

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*JAMES C. FARRELL

GEORGE ALEXANDER

EDGAR S. BARNEY

COURTLAND V. ANABLE

FRANKLIN H. GIDDINGS

* Deceased.

FACULTY

*CHARLES ALEXANDER RICHMOND, D. D., LL. D.
Chancellor of the University

JAMES PETER BOYD, A. B., M. D.
Emeritus Professor of Obstetrics and Diseases of Children

CYRUS STRONG MERRILL, M. D.
Emeritus Professor of Ophthalmology and Otology

Department of Medicine

*HERMON CAMP GORDINIER, A. M., M. D.
Professor of Medicine

*THOMAS ORDWAY, A. M., Sc. D., M. D.
Dean and Associate Professor of Medicine

ANDREW MacFARLANE, M. D.
Clinical Professor of Medicine

JESSE MONTGOMERY MOSHER, M. D.
Clinical Professor of Mental Diseases

ARTHUR SAUTTER, M. D.
Clinical Professor of Dermatology and Contagious Diseases

HENRY LARNED KEITH SHAW, M. D.
Clinical Professor of Pediatrics

EDWARD WATERBURY BECKER, M. D.
Instructor in Medicine

FREDERIC CHARLES CONWAY, M. D.
Instructor in Medicine

ERASTUS CORNING, M. D.
Instructor in Medicine

MALCOLM DOUGLAS, M. D.
Instructor in Medicine

NELSON KAUFMAN FROMM, M. D.
Instructor in Medicine

LEMUEL WHITTINGTON GORHAM, M. D.
Clinical Professor in Medicine

* Member of the Executive Faculty.

CLARENCE FLACK GRAHAM, M. D.
Instructor in Medicine

CLINTON BENJAMIN HAWN, M. D.
Clinical Professor in Medicine

WILLIAM KIRK, M. D.
Instructor in Medicine

CLINTON PRESTON McCORD, M. D.
Instructor in Educational Hygiene

JOSEPH PATRICK O'BRIEN, M. D.
Instructor in Medicine

FRANK VANDER BOGERT, M. D.
Instructor in Pediatrics

CHARLES KNICKERBACKER WINNE, JR., M. D.
Instructor in Medicine

ARTHUR BENSON, M. D.
Assistant in Medicine

LEROY SOLOMON BLATNER, D. D. S.
Assistant in Oral Pathology

OTTO A. FAUST, M. D.
Secretary and Instructor in Medicine

PERCIVAL W. HARRIG, M. D.
Assistant in Dermatology

RICHARD ANDREW LAWRENCE, M. D.
Instructor in Pediatrics

FRANK JOHN WILLIAMS, M. D.
Instructor in Pediatrics

Department of Surgery

*ARTHUR WELLS ELTING, M. D., LL. D.
Professor of Surgery

ARTHUR JOSEPH BEDELL, M. D.
Clinical Professor of Ophthalmology and Otology

JOHN McWILLIAMS BERRY, M. D.
Clinical Professor of Orthopedics and Roentgenology

* Member of the Executive Faculty.

JOSEPH LEWI DONHAUSER, M. D.
Clinical Professor of Surgery

JOHN BRUCE HARVIE, M. D.
Clinical Professor of Surgery

CLEMENT FRANK THEISEN, M. D.
Clinical Professor of Laryngology and Rhinology

JAMES NEWELL VANDER VEER, M. D.
Clinical Professor of Genito-Urinary Surgery

GEORGE EVERETT BEILBY, M. D.
Instructor in Surgery

EDWIN LYON DRAPER, M. D.
Instructor in Surgery

E. GERALD GRIFFIN, M. D.
Instructor in Surgery

EUGENE EUNSON HINMAN, M. D.
Instructor in Laryngology and Rhinology

CHARLES G. McMULLEN, M. D.
Instructor in Surgery

CHARLES HENRY MOORE, M. D.
Instructor in Ophthalmology and Otology

ARTHUR SAUTTER, M. D.
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Instructor in Genito-Urinary Surgery

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JOHN PAUL O'KEEFFE, M. D.
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Department of Gynecology

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ROLAND G. HOLT, M. D.
Instructor in Obstetrics

TIFFANY LAWYER, M. D.
Instructor in Gynecology

DARWIN ALFRED BRUCE, M. D.
Assistant in Obstetrics

WAKEMAN CLARK EGERTON, M. D.
Assistant in Obstetrics

RESIDENT OBSTETRICIAN, BRADY MATERNITY HOME
Assistant in Obstetrics

Department of Neurology

*LASALLE ARCHAMBAULT, M. D.
Professor of Neurology

NELSON KAUFMAN FROMM, M. D.
Instructor in Neurology

WILLIAM KIRK, M. D.
Instructor in Anatomy of the Nervous System

Department of Anatomy

*WESLEY MANNING BALDWIN, A. M., M. D.
Professor of Anatomy

CHARLES E. ALLEN, A. B.
Instructor in Anatomy

THOMAS WILLIAMS JENKINS, M. D.
Assistant in Anatomy

MAVER MILLER LEE
Assistant in Anatomy

* Member of the Executive Faculty.

Department of Physiology

*MELVIN DRESBACH, M. Sc., M. D.
Professor of Physiology

ARTHUR KNUDSON, PH. D.
Associate Professor of Biological Chemistry

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Instructor in Pharmacology

LAWRENCE JOSEPH EARLY, M. D.
Assistant in Physiology

Department of Pathology

*GEORGE S. GRAHAM, M. D.
Professor of Pathology

LAWRENCE JOSEPH EARLY, M. D.
Instructor in Pathology

LUCY E. BOURN, PH. B.
Instructor in Bacteriology

CALENDAR FOR 1919-1920**1919**

Examinations begin.....Monday, September 15
Registration of students.....Monday, September 22
Election recess.....Tuesday, November 4
Thanksgiving recess.....November 27, 28, and 29
Christmas recess.....Wednesday, December 24

1920

Recitations resumed.....Friday, January 2
Mid-Year examinations begin.....Wednesday, January 28
Second semester begins. (All classes except first year)
Monday, February 9
First semester of first year ends.....Thursday, February 12
Second semester of first year begins.....Monday, February 16
Examinations beginSaturday, May 29
Commencement.....Monday, June 7

* Member of the Executive Faculty.

REQUIREMENTS FOR ADMISSION

Admission to First Year Class. No applicant for the Degree of Doctor of Medicine will be admitted to the Albany Medical College, Medical Department of Union University, unless he has satisfactorily completed, in addition to a high school course, two years of work in Union College or presents equivalent credits, from another approved institution, as outlined below. Each candidate must present a Medical Student's Certificate from the Examinations Division of the Board of Regents of the State of New York.

Limitation of Numbers. The classes are limited in number and the college reserves the right in its discretion to refuse applicants, if the number admitted is as large as can be effectively taught. Women are admitted. Students are requested to apply for admission before July 1, on blanks to be furnished by the Dean's office. All inquiries and other communications should be addressed to Thomas Ordway, M. D., Dean, Albany Medical College, Albany, N. Y.

Admission to Advanced Standing. All candidates for the degree of Doctor of Medicine desiring to be admitted to advanced standing must satisfy the conditions referred to under Admission to the First Year Class and in addition must present evidence that they have satisfactorily completed in an approved medical school the courses from which exemption is desired. They may also be required to pass examinations by the heads of the departments concerned.

Admission as Special Students. On petition, supported by recommendation from the head of the department, special students may, at the discretion of the faculty, be registered in any course. Students who intend to be candidates for the degree of M. D., but find it practicable to devote only a limited amount of time to study and class work, may with the Dean's permission spread the courses of any one year over not more than two years, provided they will adapt themselves to any changes that may be made in the curriculum, and pay their fees pro rata, plus any just contingent increment found necessary. Resumption after the interruption of the medical course will be allowed at the

point where the student dropped out only when the intermission is not over two years and providing he has the preliminary education of the class to which he is admitted. Courses added, modified or lengthened during his absence are, at the discretion of the faculty and the instructor in charge, repeated in whole or in part.

EXAMINATION AND ADVANCEMENT OF STUDENTS

The passing mark for any course is 75. A mark below 75, but above 59, constitutes a "condition." A mark below 60 constitutes a "failure." A student who has failed in any subject must repeat the work in that subject. A student who is conditioned in not more than 50% of credits during the first and second years and not more than 25% of credits during the third and fourth years is entitled to but one re-examination on the subjects in which he is conditioned. All conditions must be passed before the student may enter the succeeding year. Students conditioned in more than 50% of credits during the first and second years and more than 25% of credits during the third and fourth years must repeat the work of the entire year. No student will be registered more than twice in the same course. No student will be admitted to the third-year class unless he has taken the preliminary State Board examinations. No student will be admitted to the fourth-year class unless he has successfully passed the preliminary New York State Board examinations.

FEEES

The tuition fee is \$160.00 (one hundred sixty dollars) a year, payable in advance, or if desired, in two installments, the first on or before September 22, 1919, the second on or before Saturday, February 7, 1920. The fee for dissecting material is \$15. There are no extra charges except for the rental of microscopes, laboratory breakage or loss and certain individual supplies for which a deposit of \$5 is required in each of the following courses: anatomy, physiology, biological chemistry, pathology, pharmacology, and clinical pathology. All fees are payable at the Dean's office and are not returnable.

DEPARTMENTS OF INSTRUCTION

ANATOMY

Anatomy. The work in this department is practical and the instruction personal. The various tissues and organs of the human body are studied synchronously, so far as is possible, in the subdivisions of embryology, microscopical anatomy, and gross anatomy in order that the student may acquire a more comprehensive view and better correlated knowledge of the subject. The kinship of human structure to that of the higher vertebrates is pointed out by lecture and demonstration. The morphological features of the cadaver are interpreted upon biological and physiological grounds. Consideration of the various aspects of the mechanics of development leads to the fields of embryological defects, arrests, and monsters. Emphasis is laid upon the relation of the science to surgery and to medicine by the courses in regional and surgical anatomy. The subject matter of the whole science is approached with the purpose of inquiry and investigation.

The laboratories are equipped for research work along descriptive and experimental lines. Research workers who will give half or the whole of their day will be welcomed and granted every facility.

Gross Anatomy. This subject is taught almost entirely by the dissection of the human cadaver. Demonstrations upon the cadaver, models, and prepared dissections are given when necessary for the purpose of elucidating the more difficult features of the subject as they occur. Dissections of the adult are compared with those of the infant. The work of the dissecting room is further augmented by the study of living models, the purpose being to familiarize the student with the features of the live body as they present themselves to the eye and to the touch, thereby effecting a most essential and practical correlation with the facts gained in the dissecting room. The body is divided into the following parts for dissection:

- | | |
|-------------------------|---------------------------|
| I Head and neck. | IV Upper extremity. |
| II Thorax | V Lower extremity. |
| III Abdomen and pelvis. | VI Brain and spinal cord. |

The required work upon each part comprises (a) a dissection of the part, (b) a practical oral examination upon the completion of the part, (c) a written examination upon the completion of the part. 495 hours.

Special courses consisting of the dissection and study of regions or of parts are open to graduates.

Microscopical Anatomy. Instruction in histology is given by means of lectures, demonstrations, class conferences, and by practical work in the laboratory. The science is approached by the study of the cell and of the elementary tissues. The finer anatomy of the organs of the cadaver is considered in connection with the study of freshly-autopsied material and the work in the dissecting room. The consideration of living and of fresh and unstained tissues precedes that of fixed and stained specimens. Practical instruction in the fixation, imbedding, cutting, and the vital-staining of tissues is given. Class conferences are held at stated intervals. 132 hours.

Embryology. Instruction in this subject is given by means of lectures, demonstrations upon models, class conferences, and by laboratory work. The lectures cover the various features of mitosis, fertilization, cleavage, gastrulation, and the formation of the germ layers. Later, by coordination with the work in gross anatomy, the various phenomena of histogenesis and of organogenesis are considered. Emphasis is laid upon those stages of development at which defects, arrests, and monsters are most likely to occur and interpretations sought in the fields of comparative and of experimental embryology. The laboratory work consists of the study of stained serial sections and of the study of the larger embryological features by means of the binocular microscope. Demonstrations and class conferences are held at stated intervals. 72 hours.

PHYSIOLOGY

Physiology. The aim of this course is to provide a general survey of the fundamental laws of tissue activity and the ways by which the various organs of the body are correlated in the complex reactions of the organism as a whole. Although the physiology of man is the main subject of the course, the facts of

general physiology are extensively drawn upon in the presentation of special phases of the science.

The student, already well grounded in the structure of the body, is at first required to employ the simpler procedures used in studying the reactions of the tissues to stimuli. Later, more elaborate experiments on the different systems of the body are performed. The importance of the graphic methods, thus introduced to the student, is emphasized, both in their employment in physiology and in medical work.

The observations made in the laboratory, including the teaching and research departments, together with reading done by the student in his textbook and other sources of information, form the basis for discussions in the classroom. In addition, special features of the subject are brought out in lectures and demonstrations. Emphasis is laid upon the student's own efforts. Thus, in addition to the laboratory and classroom exercises, reviews of current literature are required and essays (at least one by each member) are written, the essays embodying the results of extended reading on special topics. The best of these are read by the authors before the class. In this literary work the student has an opportunity to familiarize himself with the general sources of information in the science, the State Library, with its excellent medical division, being freely at his service.

The student's knowledge of the subject is tested by intimate personal contact with his instructors, by stated written examinations during the course, and by a comprehensive final examination. Approximately three hundred and sixty hours are devoted to the subject as follows: Lectures, fifty hours; recitations, forty-five hours; demonstrations, fifteen hours; laboratory work, two hundred and fifty hours.

The physical side of physiology is correlated with the chemical and with pharmacology, as outlined below.

Biological Chemistry. A systematic course of lectures, recitations, conferences and laboratory work is given covering those portions of the subject which are of the greatest importance to the student of medicine. Subjects studied in detail are: Composition and properties of carbohydrates, fats, and proteins; chemistry and physics of the cell; composition of milk and more

important foodstuffs; chemistry of digestion, absorption and metabolism; study of tissues—blood, muscle, nervous and connective; normal and pathological urine. In the laboratory course each student is supplied with all chemicals and apparatus required. As a prerequisite courses in chemistry required for entrance; namely, inorganic, quantitative analysis and organic chemistry are essential. This course is concentrated in the second semester of the first year; lectures or recitations, 5 hours per week, and laboratory, 10 hours per week.

Clinical Chemistry. The work in this course consists of a study of important practical aspects of clinical chemistry and nutrition, supplemented by lectures and outside reading. The course is devoted to qualitative and quantitative clinical examination of urine, gastric contents, blood, milk and feces. A part of the course consists also in carrying out a series of metabolism experiments in order to impress the important points of normal and abnormal metabolism. The student is thus made familiar with procedures which have an important practical application. Lecture, 1 hour, and laboratory, 4 hours per week, during the second half of the second year.

Pharmacology. In this course, instruction is given by lectures, recitations, demonstrations and laboratory work. The work covers pharmacy and materia medica in which the student has an opportunity of learning the physical and chemical properties of the most important drugs; a few exercises in pharmaceutical compounding and in prescription writing and incompatibilities are included. The major part of the course covers experimental work illustrating the physiological action of a number of drugs.

Pharmacy. Lectures and recitations, one hour a week; laboratory, two hours a week.

Pharmacodynamics. Lectures and recitations, three hours a week; laboratory, four hours a week.

These courses are given during the second half of the *second* year. 160 hours.

Research and Advanced Work. Students properly qualified may select special work and undertake investigation in physiology, biochemistry and pharmacology.

PATHOLOGY

This department provides instruction in pathology, bacteriology, parasitology and certain phases of legal medicine.

The work in pathology and bacteriology is preceded by a brief explanatory talk, or followed by a lecture intended to correlate the various observations made during the day. The student is taught laboratory methods and the elementary principles of investigation. The material received daily is also used in the teaching and the student thus becomes familiar with laboratory routine.

A small museum of gross pathological material is available and is constantly being augmented. It contains examples of the more common lesions such as the student must become intimately acquainted with and also rare specimens of immediate teaching value. For the microscopic study of tissue changes each student will be provided with a loan collection of carefully prepared slides. Any student desiring duplicate slides to be kept as a personal collection will be provided with the materials necessary for their preparation.

The autopsies performed during the course are viewed by small groups of men and the material carefully studied in gross and microscopically. After some progress has been made, protocols of actual autopsies are read and discussed by the class in conference. So far as available cases will allow, each member of the class will be given opportunity for practical post-mortem work and will become responsible for a full report on the gross and microscopic findings in the case assigned to him.

MEDICINE

Internal Medicine. Instruction in internal medicine will be given in the *third* and *fourth* years. In the *third* year the student is engaged in practical individual work in the general dispensaries, St. Peter's Hospital and the Tuberculosis Department, acting as assistant in caring for out patients.

Systematic didactic and clinical lectures in medicine are given during the *third* and *fourth* years as a basis for correlating and amplifying the information gained in the clinics and at the bedside. In the *fourth* year the students serve as assistants in the

medical wards. Here they have bedside instruction in small groups, and responsibility under supervision.

In the *third* year didactic or clinical lectures are given by Drs. Gordinier, Ordway, MacFarlane, Howk and Hawn.

In the *fourth* year two medical clinics are given each week to the entire class, and students are required to take at least three months medicine (4 hours a day) as assistants in the wards of the Samaritan Hospital and the Albany Hospital under the direction of Drs. Gordinier and Ordway.

Physical Diagnosis. The course in physical diagnosis, including history taking, is given to small groups in the latter half of the *second* year followed by an intensive review early in the *third* year and continued during the entire year in the form of dispensary work, four three-hour periods a week supplemented by one period a week used as a lecture hour, quizz hour or demonstration clinic.

In the *second* year, the work is on selected material found in the Frances Elliott Austin Infant's Home, the Albany Orphan Asylum and the Albany Hospital Tuberculosis ward, and dispensaries, while the *third* year instruction is carried out in the dispensaries of the Albany Hospital and St. Peter's Hospital, the Alms House Hospital and St. Margaret's House. In this way it is believed that the student will acquire, first a knowledge of the normal, and later have abundant opportunity to study abnormal physical signs as such, as well as their combinations occurring in various diseases, thus preparing him for intensive study of medicine in clinical bedside sections in the *fourth* year.

Therapeutics. A course of one hour a week in Therapeutics is offered to *third* year men. A special effort will be made to show the clinical use of those drugs whose pharmacologic action has been studied by the student in the *second* year, and thus to bridge over the gap between Pharmacology and Therapeutics, encouraging the student to demand pharmacologic proof for the action and efficacy of a drug. Lectures and demonstrations, including instruction in prescription writing, will be given dealing with such therapeutic procedures as paracentesis of the chest and abdomen, lumbar puncture, intra-spinal injections, intravenous injections and transfusion. Demonstrations of some of the

simpler procedures connected with nursing, such as the preparation of the hot pack, the alcohol sponge bath, etc., will be given under the direction of the superintendent of nurses of the Albany Hospital.

Lectures and, in so far as possible, demonstrations will be given in the following by those specially qualified to do so: Electrotherapy, X-Ray, Radiotherapy, Massage, and Hydrotherapy. 32 hours.

Pediatrics. The course of study in children's diseases will consist of didactic lectures on the practical recognition and treatment of diseases of children. Clinical bedside instruction in small groups, history taking, study of case histories, demonstration of infant feeding and preparation of food, examination of milk, stools, etc. Practical demonstrations of lavage, gavage, colon irrigation, lumbar and longitudinal sinus puncture, weighing, bathing and clothing babies.

Social pediatrics with practical work at Child Welfare Station, Day Nurseries, visit to milk depots and dairies, medical school inspection under the direction of Dr. Clinton McCord, dental clinics, etc.

During the senior year elective work in the care and feeding of infants can be taken at St. Margaret's House and Hospital where laboratory facilities give opportunity for special research work.

The cities of Albany, Troy, and Schenectady offer numerous opportunities for students for the study of diseases of children and infants, and also facilities to observe the medical inspection of school children and the operation of infant welfare stations.

The Child's Hospital, St. Margaret's House and Hospital for Infants, the Children's Ward of the Albany Hospital and Ellis Hospital, the Frances Elliott Austin Infants' Home and the dispensaries of the Albany Hospital, and the South End Dispensary, afford abundant clinical material for the student.

The Albany Orphan Asylum, St. Vincent's Orphan Asylum and the Troy Orphan Asylum permit students from the Albany Medical College free access to study the diseases of children. 160 hours.

Educational Hygiene. This very recently developed branch

of medicine includes a consideration of the organization, scope and methods of school medical inspection, health education, physical training, the sociology and psychology of mental deficiency and delinquency as confronted in the public schools, nutritional problems amongst school children, school nursing, control of contagious diseases in the schools, the operation of school dental dispensaries and the development of systems of records in the administration of the above lines of health activity. 40 hours.

Dermatology and Contagious Diseases. In the *third* year clinics and clinical lectures will be given two hours a week by Dr. Harrig, and in the *fourth* year section work will be given to groups of students by Drs. Sautter and Winne. In the *fourth* year one hour a week will be devoted to a quiz by Dr. Winne.

Didactic lectures in contagious diseases will be given for the most part in the course in pediatrics. For the practical individual instruction in contagious diseases students will be taught in small sections during the *third* and *fourth* years, in which they will receive bedside instruction in the contagious department of the Albany Hospital by Drs. Sautter and Winne, and the contagious department of the Samaritan Hospital by Dr. Gordinier.

Mental Diseases. Instruction is given to the *senior* class divided into sections. Students report upon the wards at half-past two o'clock Mondays during the term, and in groups of two or three are assigned individual cases for examination. At half-past three the section meets the instructor and the reports are discussed and criticized. A syllabus in the form of a notebook with short psychological introduction is used as a guide. Opportunity is given to observe the progress of different cases from week to week.

This plan of instruction was adopted upon the opening of Pavilion F in 1902 and is thought to be the first instance in this country of systematized bedside teaching of mental diseases for undergraduate students. 48 hours.

Clinical Pathology. In this course a systematic study of the methods for examination of urine, blood, sputum, stomach contents, stool and body fluids is undertaken. Instruction is given by means of work in the laboratory, supplemented by brief lec-

tures and outside reading. Emphasis is laid upon the training of students in the practical and personal application of laboratory diagnostic methods. 48 hours second semester of *second* year and 36 hours first 12 weeks of *third* year.

Each student is provided with a microscope, locker, blood counting apparatus, reagents, etc.

Public Health. Two courses in Public Health will be given during the second semester.

I. Laboratory Course in Public Health.

This course is designed primarily for undergraduates, but physicians and health officers may enroll. It consists in lectures, demonstrations, and practical laboratory and field work, including a sanitary survey.

II. Post-Graduate Course in Infectious Diseases and Public Health.

This course is designed for health officers and physicians.

SURGERY

Surgery. The teaching of surgery begins in the second half of the *second* year, with a course in Regional, Applied and Surgical Anatomy, six and one-half hours a week, given by Drs. Baldwin and Stein. In addition to this, Dr. Draper gives a course in surgical technique one hour a week.

In the *third* year Dr. Donhauser gives a course in Surgical Diagnosis two hours a week. Dr. Beilby gives a laboratory course in Surgical Pathology three hours a week. Section work in the surgical dispensary at the South End Dispensary is given throughout the year by Drs. Beilby and Draper, and at the Albany Hospital Dispensary by Drs. Donhauser and Southwell. Dr. Stein conducts a recitation in Surgery one hour a week throughout the year. Dr. Elting conducts a surgical clinic one hour a week throughout the year. Dr. McMullen conducts a surgical clinic at the General Electric Company Emergency Hospital and at the Ellis Hospital in Schenectady one forenoon a week.

In the *fourth* year Dr. Elting supervises the bedside teaching in which the senior students in small groups serve as assistants in the wards of the Albany Hospital. In this work he is assisted

by Dr. Stein. Dr. Elting conducts two surgical clinics a week. Dr. John B. Harvie, assisted by Dr. Peter L. Harvie, conducts the surgical teaching in a similar manner in the Samaritan Hospital in Troy. Recitations in Surgery are conducted by Dr. Draper one hour a week.

Surgical Anatomy. The course in surgical anatomy given in the second half of the *second* year consists of a series of demonstrations, lectures and quizzes to round out the course in anatomy just completed and to illustrate the practical application of anatomy to everyday problems in surgery and medicine. The college is fortunate in having a large collection of museum specimens, and these, together with dissections and correlary demonstrations on a living subject, aim to give a comprehensive idea of pathological processes of the human organism, the topographical anatomy for diagnosis and surgical routes for treatment. 102 hours.

Surgical Technic and Minor Surgery. The course in surgical technic and minor surgery consists as far as possible of practical demonstrations, preceded by a brief synopsis of the development of modern surgical technic.

The following subjects are included in the course: Preparation of patient and operator for surgical operations; methods of preparation and sterilization of gauze in the various forms in which it is used; preparation of suture and ligature material and the indications for their use; demonstration of instruments, their uses, care and sterilization; drainage in its various forms and its indications; preparation of poultices and fomentations; methods and appliances used in the post-operative care of patients, such as dressing of wounds, feeding appliances, stomach and rectal tubes, catheters, transfusion, application of heat and cold, and use of the Esmarck bandage and the tourniquet.

Practical work is required of each student in the application of various types of bandages and splints. 16 hours.

Surgical Pathology. Surgical Pathology will be taught three consecutive hours a week throughout the *third* year. One hour is to be devoted to lectures and two hours to microscopic and macroscopic demonstrations of surgical specimens and of other

pathological material available at the time. The essentials of histology and pathology and their relation to surgery will be discussed before starting on general and special surgical pathology. Stress will be laid on the clinical symptoms as derived from pathologic lesions. 96 hours.

Surgical Diagnosis. The course in Surgical Diagnosis, as given to the *third* year class, comprises two hours a week throughout the year of practical and didactic lectures. When possible an extra hour is added per week.

The lectures are based upon a Surgical Diagnosis Syllabus, which gives to the student the essentials of general and of special diagnosis.

The methods of examination of the patient are presented. Special stress is given to regional anatomy, regional symptoms, and regional differentiation of symptoms. Case history teaching occupies a prominent part of the course, and the syllabus presents to the student various types of questions applicable to special groups of cases.

Orthopedics and Roentgenology. The course in Orthopedics will be given at the Medical College building and in the wards of the Albany Hospital and The Child's Hospital. The Albany Hospital and The Child's Hospital are equipped to care for orthopedic cases of all kinds and in connection with The Child's Hospital there is a corrective room in charge of a competent instructor. The clinical material includes all classes of orthopedic cases. In the *third* year orthopedics will be taught by means of clinical lectures and lantern slide demonstrations. In the *fourth* year the students are divided into sections and in the wards of the Albany Hospital and The Child's Hospital are given an opportunity to see and examine all cases and note the treatment given.

For the course in Roentgenology the Albany Medical College will have at its disposal the Roentgen Ray Department of the Albany Hospital and of The Child's Hospital. The equipment of these departments is excellent; it includes the apparatus for the use of gas and Coolidge X-Ray tubes, stereoscope, stereoscopic tube stand, stereoscopic abdominal and thoracic apparatus both horizontal and vertical, horizontal and vertical roentgenscopic

apparatus, a general localizer and a localizer for foreign bodies in the eye. The clinical material of the departments is extensive and varied. The work at present averages about 8000 roentgenographic and roentgenscopic examinations a year. The value of the Roentgen Ray as an aid to diagnosis in the various branches of medicine and surgery will be considered in a series of lectures and demonstrations and a special study of X-Ray plates as related to Orthopedic Surgery will be made throughout the year.

Genito-Urinary Surgery. In the *third year* didactic lectures (one hour per week) throughout the college year aim to inculcate in the minds of the students the salient features of the usual diseases met with, so that the student is fitted to pursue the work of the next year in an intelligent manner. These lectures are illustrated and there is an occasional lantern slide demonstration in the nature of a review. In the *fourth year* teaching is entirely by sections of four to eight men; the students have practical individual experience in the treatment of cases.

The Albany Hospital, through its Genito-Urinary Department and the South End Dispensary branch, offers ample clinical material for teaching.

A special class will be formed for those who wish to pursue advanced study, and will consist of ten lessons of one hour each.

Ophthalmology and Otology. A one hour lecture will be delivered every week for the first half of the *third year* in ophthalmology and the latter half in otology. The didactic work will be illustrated by lantern slides and cadaver operations.

The *third year* class will be divided into sections for the study of the usual diseases of the eye and ear. Cases illustrating the routine method of examination for both eye and ear diseases will be presented. Special emphasis will be laid upon the external diseases of the eye, the method of using the ophthalmoscope and its practical application, operations, and the relationship between ophthalmology and general medicine. The student will examine the patients and must pass a theoretical and practical examination.

They will be taught the method of examination and treatment of the usual ear diseases. This instruction will be supplemented by operations and internal ear lesion demonstrations.

The course will be so arranged that each student will have an opportunity to become thoroughly familiar with routine examination and the ordinary diseases of the parts studied.

The Albany Hospital, Albany Hospital Dispensary, South End Dispensary, County Hospital, Albany Orphan Asylum and Old Ladies' Home afford abundant opportunity for extended observations.

Laryngology and Rhinology. The *third year* class will be divided into sections for practical work in diseases of the nose and throat. One didactic lecture will be given every week. Students will be taught methods of examination and diagnosis. Clinical material at St. Peter's Hospital, the Albany Hospital, Child's Hospital, South End Dispensary, and Elliott Austin Home will be available for this purpose.

NEUROLOGY

This department provides instruction in neurology, neuropathology and the anatomy of the nervous system.

Work in this department really commences in the *first year*, during which the student is taught the embryology of the nervous system and acquires a preliminary acquaintance with the gross morphology of the brain and spinal cord as well as with the histology of the nerve elements and the simpler divisions of the central and peripheral nervous organs. During the *second year* an illustrated didactic lecture is given each week by Dr. Kirk on the anatomy and physiology of the nervous system, and in addition a weekly laboratory exercise of three hours is devoted to the gross and microscopic study of the normal and pathological anatomy of the nervous system. In this laboratory course the student receives sections of the different levels of the cerebro-spinal axis from the cauda equina to the basal ganglia, as well as typical sections illustrating practically all the known diseases of the brain and spinal cord. At stated intervals recitations are held on the more important topics covered in the lectures and demonstrations. During the *third* and *fourth years* the students attend one didactic and one clinical lecture and one recitation on diseases of the nervous system each week. The recitations are conducted by Dr. Fromm. Instruction in neurology is given to

both classes at the same time, the subject matter being so divided that diseases of the brain are covered one year and diseases of the spinal cord and peripheral nerves the following year. Particular attention is given to the neurological clinics at which each patient is presented by two students of the senior class to whom the case has previously been assigned for examination and diagnosis. The method of history taking and examination, the reported findings and the postulated diagnosis are criticised, and considerations bearing upon pathogeny, differential diagnosis and therapeutic indications are discussed at length. When suitable cases are available, lumbar puncture, differential electrical tests, experimental induction of vertigo and nystagmus, etc., are performed before the class. Cases for neurological clinics are always easily obtained either from the general medical service and out-patient department of the Albany Hospital and the Child's Hospital, or from the Alms House and County Hospital. Occasionally, a clinic hour is utilized for a lantern slide demonstration of neurological conditions not encountered in the usual clinical display, there being for this purpose an exceptionally varied and interesting collection of pictures derived from the leading neurological clinics of Europe. In addition, the students of the *fourth* year class, divided into small groups, have the opportunity on certain days of seeing and examining patients in the various dispensaries and of learning the technique of electro-diagnosis and electro-therapy. 349 hours.

GYNECOLOGY

Gynecology. Gynecology is treated by a course of classroom studies in which the various normal and abnormal conditions of the pelvic organs are presented to the students in the form of illustrated problems which they are asked to solve. The solution of these problems is supplemented by additional information necessary to complete the subject under discussion. This exercise is held once a week throughout the *third* and *fourth* years. Practical instruction is given to the *fourth* year class (in small groups) at the South End Dispensary and Albany Hospital. 32 hours third year. 96 hours fourth year.

Obstetrics. Material for instruction is furnished by the Anthony N. Brady Maternity Home, the Albany Hospital and the Albany Guild for Public Health Nursing.

The Anthony N. Brady Maternity Home maintains a public ward service of twelve beds, a dispensary, and a motor ambulance. Practical instruction will be given by the Clinical Professor of Obstetrics who is Attending Obstetrician to the Home and by the Assistant in Obstetrics who is its Resident Obstetrician.

The material offered by the Albany Hospital in its maternity ward of seven beds will be utilized as available. The Special Obstetric Department of the Albany Guild for Public Health Nursing, under the direction of the obstetric department of the college, offers opportunity for the care of cases in their homes.

The aim of the department is to assure the student a firm foundation in obstetric principles and offer intensive instruction upon a relatively limited number of patients.

Second Year: Two recitations each week, second half of year.

Third Year: One lecture each week, throughout the year.

Fourth Year: Residence at the Anthony N. Brady Maternity Home as "temporary interne" under the immediate instruction of the Resident Obstetrician; two weeks.

Out-patient service under the immediate supervision of Drs. Bruce and Egerton.

History of Medicine, Medical Ethics, Medical Jurisprudence and Economics. These subjects are covered in the regular courses of study by several departments and by special lectures. The responsibilities of the physician towards the insane and their relatives and the general public, and the criminal aspects of the mentally defective, are discussed in the course in mental diseases by Dr. Mosher, and in the public health course. In the course on obstetrics Dr. Harper takes up the moral and legal side of rape, feigned and unconscious pregnancy, what constitutes a "live birth," feigned or unconscious delivery, injury to the foetus during precipitate labor, post mortem delivery and the diagnosis of recent delivery. Certain medico-legal aspects of toxicology are covered in the course in pharmacology. In the course in gross pathology, medico-legal autopsies and cases of

homicide, suicide, accident and abortion and other phases of legal medicine are demonstrated or discussed.

POST GRADUATE COURSE

The course, an outline of which follows, is offered through the cooperation of the Albany Medical College and the New York State Department of Health.

It is believed that it will appeal to the Health Officers and other physicians because of its practical features, and the fact that a minimum sacrifice of time and money will be required of its participants. Registration will be limited to graduates in medicine, and so far as practicable, the course will consist of lectures, informal conferences, practical demonstrations and clinics. It will be noted that a special effort has been made to co-ordinate the various laboratory, clinical and didactic features with reference to various subjects and diseases. The sessions of the class are given one day each week, except in the last month an additional half day has been found necessary. The sessions are held in the Albany Medical College, Albany Hospital and the State Laboratory, as occasion requires.

For further details, address:

THOMAS D. ORDWAY, M. D.,
Albany Medical College,
Albany, N. Y.

ALBANY LAW SCHOOL

This school is among the oldest institutions of the kind in the country, having been established in 1851, and its graduates number many of the most successful men in the profession. It is and has been largely represented in the executive, judicial and legislative departments of this and many other states, as well as of the federal government. It became a part of Union University in 1873, and begins its sixty-eighth year as a law school with the present scholastic year. During its long and successful career it has, in common with other law schools, done much to demonstrate what was at one time doubtful, but is now accepted almost as an axiom, that a course at the law school is a well-nigh necessary prerequisite to a successful professional career. Its instructors have always been men of repute and standing, both for professional learning and personal character.

The local advantages of the city of Albany, as the seat of a professional school, can not be overrated. It is the capital of one of the leading states in the Union, whose legislature is in session here for the third part of the year, presenting opportunities not afforded by any other law school in the state for observing the methods and procedure collectively of the executive, judicial and legislative departments of the state government. The knowledge thus obtained by the students at law, who are to complete their course and to enter the realm of public affairs, can not be overestimated. It is easily accessible, remarkably healthful, and the scene of great business and professional activity.

The facilities afforded the students for reading and study are unsurpassed. Besides the convenient and well chosen library of the school accessible to the students at all hours of the day and evening, the students have the privilege of using the state law library, which is now established in the New Education Building. With free access to these libraries the student may be relieved to a great extent from purchasing text-books.

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Hubbard Chair of Legal Ethics

The circulars of seventy of the leading law schools of the country show that a very few years ago only twenty of this number made the subject of legal ethics part of the curriculum. With two exceptions, those schools were either in the west or south. These facts led Gen. Thos. H. Hubbard, class of '60, to place at the disposal of the board of trustees the sum of \$10,000, the income to be applied to lectures upon this subject. The board of trustees decided to inaugurate the course at the opening of the school year of 1903 and twenty-nine Lectures by as many distinguished judges and lawyers have been delivered up to this time.

CALENDAR

1919

Registration, first semester.....Tuesday, September 16
Scholastic year begins.....Wednesday, September 17
Election day recess begins.....Friday, October 31
Lectures resumed.....Wednesday, November 5
Thanksgiving recess begins, noon.....Wednesday, November 26
Lectures resumed.....Monday, December 1
Holiday recess begins, noon.....Wednesday, December 24

1920

Lectures resumed.....	Monday, January 5
Examinations.....	Thursday, Friday, Saturday, January 22, 23, 24
McKinley day — recess.....	Thursday, January 29
Registration, second semester.....	Tuesday, January 27
Lincoln's birthday — no recess.....	Thursday, February 12
Washington's birthday, (Feb. 22) — recess...	Monday, February 23
Easter recess begins, noon.....	Thursday, April 1
Lectures resumed.....	Monday, April 12
Memorial day, (May 30) — recess.....	Monday, May 31
Examinations.....	Thursday, Friday, Saturday, May 27, 28, 29
Commencement.....	Wednesday, June 9

REQUIREMENTS FOR ADMISSION AND GRADUATION

The course for graduation is now three years. Candidates for graduation from this school will be required (1) to present evidence of a general preliminary education representing at least four years, or their equivalent, of work of a grade above the elementary or grammar school before beginning the course of study; (2) to have studied law at least three full years for the degree of LL. B., each school year of which shall consist of not less than thirty-two school weeks, exclusive of vacations, in which not less than ten hours of attendance upon law lectures or recitations of such prescribed course to be given or conducted by regular members of the faculty are required in each week, unless admitted to advanced standing of one year on graduation from a registered college or university; (3) to complete the course in residence of not less than one year; (4) to be of good moral character; (5) to be at least twenty-one years of age.

EXPENSES

Matriculation fee, on entrance.....	\$10
Tuition, each year.....	130
Graduation fee	10

For catalogues or further information address

JOHN C. WATSON, *Registrar*

Albany Law School

Albany, New York.

THE DUDLEY OBSERVATORY

The Dudley Observatory is devoted to original research in astronomy, according to the purpose of its founder and successive patrons. Its contributions to science are represented in two volumes of *Annals* and in other published volumes and memoirs contained in the transactions of learned societies and astronomical journals. Its principal line of work at present is the determination of problems relating to the positions and motions of the stars and of the solar system as a whole.

The instrumental equipment of the observatory is designed for the purposes of exact measurement. In the tower of the main building is the Prunyn equatorial, with object-glass twelve inches in diameter. This instrument is equipped for both visual and photographic use, and is of a high order of mechanical perfection. The Olcott meridian circle is located in a separate building, especially designed for securing the utmost equality in the temperature between the external air and that in the building itself. Its object-glass is eight inches in diameter. It was made by Pistor and Martins, of Berlin, and is regarded by astronomers as a masterpiece of accurate workmanship. This instrument has been employed for many years in obtaining the measurements necessary for the construction of the numerous and elaborate star catalogues which have issued from the Dudley Observatory. In addition to these instruments, the observatory is in possession of various small telescopes, clocks, chronographs and smaller apparatus.

The institution is supported by an endowment, chiefly contributed by Mrs. Blandina Dudley, the late Catharine W. Bruce, and Hon. Frederic P. Olcott, as well as by appropriations which have been received from the National Academy of Sciences, and from current contributions of trustees and friends of the institution. Since 1902, annual grants have been made to the director of the observatory by the Carnegie Institution of Washington. These have been sufficient to provide for the entire force of assistants and computers now employed. In 1905, the Carnegie Institution made

special provision for carrying on the star researches upon which the observatory is engaged. This includes an appropriation which enabled the observatory to send the Olcott meridian circle to the southern hemisphere for two years with an ample force of observers, in order to carry out an essential feature of its investigations.

The Dudley Observatory is not designed to give general instruction in astronomy, though special students contemplating instruction in professional lines are received under an arrangement of computing service to the observatory.

The observatory is opened to visitors on Tuesday evening.

For further particulars apply to

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ALBANY COLLEGE OF PHARMACY

The Albany College of Pharmacy was created by act of the board of governors of Union University, June 21, 1881, and constitutes the department of pharmacy of Union University. It was incorporated as the Albany College of Pharmacy, August 27, 1881. The college is centrally located at 43-45 Eagle street.

A complete reorganization of the school has recently been effected. The faculty has been increased and strengthened, new courses have been added, and the laboratory equipment has been enlarged to meet the practical and scientific needs of the times.

Three degrees are offered: the degree of Graduate in Pharmacy (Ph. G.), given at the successful completion of two years of college work; the degree of Pharmaceutical Chemist (Ph. C.), covering three years of college work; and the degree of Bachelor of Science (B. S.), covering four years of college work.

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COLLEGE CALENDAR

1919

Supplementary examinations,

Wednesday, Friday, Saturday, September 17, 19, 20

Term begins.....Monday, September 22

Election day — recess.....Tuesday, November 4

Thanksgiving recess.....Thursday, November 27

Christmas recess.....Monday, December 22

1920

Sessions resumed.....Saturday, January 3

Midwinter examinations.....Monday, Saturday, January 12-17

Lincoln's birthday.....Thursday, February 12

Washington's birthday (Feb. 22) — recess..Monday, February 23

Final examination for first and second year students,

Monday, Saturday, April 27-May 1

Commencement.....Thursday, May 6

Summer preparatory school begins.....Tuesday, May 11

Examinations for third year and fourth year degrees,

Monday, May 19

Commencement.....Tuesday, June 8

ENTRANCE REQUIREMENTS FOR PH. G. COURSE

Every applicant for admission to the Junior Year of the Ph. G. course must be at least 17 years of age and must present a Pharmacy Student's Certificate issued by the New York State Education Department, and the number of his Registered Apprentice Certificate issued by the New York State Board of Pharmacy. Students who enter college without experience will receive their Registered Apprentice Certificate upon matriculating. Those who have successfully pursued two years' study at a high school or other school of corresponding grade, recognized by the State Education Department, may secure the Pharmacy Student Qualifying Certificate by sending their credentials to the Examinations Division, Education Department, Albany, N. Y., together with a fee of twenty-five cents.

ENTRANCE REQUIREMENTS FOR THE ADVANCED COURSES

Candidates for admission to these courses must have had four years of high school work. No student is eligible for the advanced courses unless he has satisfactorily completed all preliminary courses.

CURRICULUM

The curriculum includes:

First Year Subjects — General and Pharmaceutical Chemistry, Qualitative Analysis, Theoretical and Practical Pharmacy, Manufacturing and Dispensing Pharmacy, Botany, Vegetable Histology, Physics, Pharmaceutical Mathematics, Pharmaceutical Latin, Physiology.

Second Year Subjects — Pharmaceutical Organic Chemistry, Quantitative Analysis, Theoretical and Practical Pharmacy, Manufacturing and Dispensing Pharmacy, Materia Medica and Pharmacognosy, Microscopic Pharmacognosy, Toxicology, Pharmaceutical Jurisprudence, Commercial Pharmacy.

Third Year Subjects — Industrial Organic Chemistry, Analytical Chemistry, Urine Analysis, Pharmacy, General Biology, Physics.

Fourth Year Subjects — Physiological Chemistry, Analytical Chemistry, Pharmacy, Bacteriology, Systematic Botany, Technical Microscopy, English, French.

EVENING COURSES

An evening course is offered in Botany. There are no age or educational restrictions for those persons who wish to take up the work of this course.

SUMMER PREPARATORY COURSES

Summer preparatory work is provided for those students who have failed during their regular course. Sessions begin during

the week following commencement. Examinations are held immediately upon the completion of the work in any course.

FEEES

First and Second Year's Work

Matriculation.	\$5.00
Tuition.	125.00
Breakage deposit	10.00

Third and Fourth Year's Work

Matriculation.	\$5.00
Tuition.	135.00
Breakage deposit	25.00

Special Fees

Each evening course.....	\$30.00
Special laboratory work.....	30.00
Each summer laboratory course.....	30.00
Examination fee	10.00

SITUATIONS AND EXPERIENCE

Before Graduation. Students are not required to have drug store experience at entrance, and many students enter college who have never worked in a drug store, but such experience is desirable. There is a great demand in the numerous drug stores of the city for pharmacy students' services. The compensation usually received is large enough to meet current expenses and the practical experience obtained is very helpful to the student. Personal application for employment always brings the best results. Students desirous of obtaining employment while attending college will be assisted in securing situations, but employment cannot be promised in advance, and places cannot be secured by correspondence.

After Graduation. The demand for licensed and junior pharm-

acists far exceeds the supply. The situation is so acute, in fact, that many drug stores have been forced to close because of lack of help. The outlook, therefore, for securing employment after graduation was never brighter than at the present time, and larger salaries are being paid now than formerly.

For a separate catalog giving more complete information address

WILLIAM MANSFIELD, *Dean*,
43-45 Eagle Street,
Albany, N. Y.

ENROLLMENT, UNION UNIVERSITY, 1919-1920

STUDENTS OF UNION COLLEGE

Abbreviations

cl, A. B. course; *ls*, Ph. B. course; *sc*, B. S. course; *ch*, B. S. course in Chemistry; *en*, underclass course in general engineering; *ce*, B. S. course in civil engineering; *ee*, B. S. course in electrical engineering; *pm*, pre-medical course; *md*, completing course at Albany Medical College; N. S., North Section; M. S., Middle Section; S. S., South Section; N. C., North College; S. C., South College; O. G., "Old Gym" Dormitory.

An asterisk (*) before a student's name indicates that he has not been advanced in standing with his class.

Candidates for the Degree of Master of Arts or Master of Science

David Roy Finlay, A. B. *Schenectady*
Charles N. Waldron, B. S. *Schenectady*

Candidates in absentia — 2.

Graduate Students in Electrical Engineering

Morland King, M. E. E. *Union College* *Schenectady*
Candidate for the degree of Doctor of Philosophy
Walter L. Upson, M. E. E. *Princeton Univ* *Schenectady*
Candidate for the degree of Doctor of Philosophy
John N. Vedder, A. M., M. E. *Union College* *Schenectady*
Candidate for the degree of Doctor of Philosophy
Joseph W. Aleshouckas. *Bucknell Univ* *Great Neck*
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Candidate for the degree of Master of Science in Electrical Engineering
- C. Spencer Allen, E. E.....*Lafayette College*.....Easton, Pa.
Candidate for the degree of Master of Science in Electrical Engineering
- Elmer J. Burnham, B. S.....*Univ. of Kansas*.....Schenectady
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- Antonio C. Cardoso, E. E.....*Escola Poly. de San Paulo*..Brazil
Candidate for the degree of Master of Science in Electrical Engineering
- Edward S. Cassedy, B. S.....*Union College*.....Gloversville
Candidate for the degree of Master of Science in Electrical Engineering
- Charles M. Cogan, E. E.....*Rens. Poly. Inst.*...Saratoga Spgs.
Candidate for the degree of Master of Science in Electrical Engineering
- Eugene G. Crippen, B. S.....*Union College*.....Schenectady
Candidate for the degree of Master of Science in Electrical Engineering
- James W. Dodge, B. S.....*N. H. College*..Contoocook, N. H.
Candidate for the degree of Master of Science in Electrical Engineering
- Robert E. Doherty, B. S.....*Univ. of Illinois*.....Scotia
Candidate for the degree of Master of Science in Electrical Engineering
- Carl P. Dowell, B. S.....*Univ. of Illinois*...Port Richmond
Candidate for the degree of Master of Science in Electrical Engineering
- Harry W. Ewald, B. S.....*Johns Hopkins*...Mt. Savage, Md.
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- Chester W. Falls, B. S.....*Rens. Poly. Inst.*.....Brazil, Ind.
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- Clarence W. Hansell, B. S.....*Purdue Univ.*...Medaryville, Ind.
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- Alfred G. Hoffman, B. S.....*Mass. Inst. Tech.*....Bolton, Mass.
Candidate for the degree of Master of Science in Electrical Engineering
- William J. Huckin, M. E.....*Stevens Inst.*....Englewood, N. J.
Candidate for the degree of Master of Science in Electrical Engineering
- Merritt T. Lawrence, B. S.....*Univ. of Texas*.....Austin, Texas
Candidate for the degree of Master of Science in Electrical Engineering

- Robert D. Likely, B. S. *Leland Stanford Univ.* Ukiah, Cal.
Candidate for the degree of Master of Science in Electrical Engineering
- Harry B. Marvin, B. S. *Union College* Schenectady
Candidate for the degree of Master of Science in Electrical Engineering
- Gordon R. McDonald, B. S. *Throop College* Victoria, B. C.
Candidate for the degree of Master of Science in Electrical Engineering
- Ivan S. Mendenhall, B. S. *Rens. Poly. Inst.* Washington, Ind.
Candidate for the degree of Master of Science in Electrical Engineering
- Archie R. Miller, B. S. *Univ. of Illinois* Mahomet, Ill.
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Candidate for the degree of Master of Science in Electrical Engineering
- Henry L. Reich, B. S. *Univ. of California* .. Manila, P. I.
Candidate for the degree of Master of Science in Electrical Engineering
- Samuel Robinson, B. S. *Union College* Schenectady
Candidate for the degree of Master of Science in Electrical Engineering
- Harry Ward Samson, B. S. *Pa. State College* .. Nanticoke, Pa.
Candidate for the degree of Master of Science in Electrical Engineering
- Sanford O. Schamberger, B. S. *Union College* Gloversville
Candidate for the degree of Master of Science in Electrical Engineering
- Andrew Simpson, B. S. *Swarthmore College* .. Darby, Pa.
Candidate for the degree of Master of Science in Electrical Engineering
- Leland K. Swart *Sorbonne Univ. and Union College* Auburn
Candidate for the degree of Master of Science in Electrical Engineering
- Charles V. Terwilliger, M. S. in E. E. *Union College* Albany
Candidate for the degree of Doctor of Philosophy
- John J. Thalheimer, B. S. *Case School* Schenectady
Candidate for the degree of Master of Science in Electrical Engineering
- Patrick H. Underwood, B. S. *Rice Institute* ... Galveston, Texas
Candidate for the degree of Master of Science in Electrical Engineering
- Percival C. Van Nest, B. S. *Univ. of Illinois* Chicago, Ill.
Candidate for the degree of Master of Science in Electrical Engineering

- J. Arthur Wildermuth, B. S.....*Rens. Poly. In..* Terre Haute, Ind.
Candidate for the degree of Master of Science in Electrical Engineering
- George A. Zehr, B. S.....*Univ. of Illinois..* Washington, Ill.
Candidate for the degree of Master of Science in Electrical Engineering
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Seniors, Class of 1920

- sc Benton Fremont Allen.....*Schenectady*.....489 Hulett St.
- sc Robert Matthews Andrews.....*Guilderland*.....16 Elder St.
- ee William Russell Barnett.....*Newburgh*.....Φ Γ Δ House
- sc Carroll Everard Benedict.....*Pittsfield, Mass.*.....Φ Γ Δ House
- ee Albert George Blumenstock.....*East Springfield*.....Φ Δ Θ House
- ce Charles Harkness Bowman.....*Pittston, Pa.*.....Φ Γ Δ House
- sc Warren Crosby Carter.....*Malden, Mass.*.....24 Ray St.
- sc Walter Jesse Carvey.....*Newburgh*.....Φ Δ Θ House
- sc Arnold Vincent Cleary.....*Easthampton, Mass.* Pyramid Club
- cl James Mason Cline.....*Amsterdam*.....Φ Γ Δ House
- cl Frederick Law Comstock.....*Gloversville*.....B Θ Π House
- ee Ellsworth De Witt Cook.....*Scotia*.....Λ X A House
- ee Frank Anthony Corigliano.....*Ossining*.....S. S. S. C.
- ee Percival William Culverhouse.....*Pittsfield, Mass.*.....S. S. S. C.
- ce Leonard Thomas Cunningham.....*Schenectady*.....B Θ Π House
- ee Irving Maxwell Day.....*Schenectady*.....26 Rugby Rd.
- sc Charles De La Vergne.....*Kingston*.....A Δ Φ House
- ce Robert Stokes Densham.....*Schenectady*.....712 Campbell Av.
- ce James Francis Edward Dolan...*Schenectady*.....338 Carrie St.
- sc Jerome Clarence Eisenberg.....*Schenectady*.....636 Terrace Pl.
- ee Charles Fink*Stamford*.....S. S. S. C.
- ee Donald Morgans Forsyth.....*Middletown*.....Δ Υ House
- sc George Henry Fox, Jr.....*Richmondville*.....X Ψ Lodge
- sc George Laverick Frisbee.....*Hamburg*.....B Θ Π House
- ce David Gardinier*Chatham*.....Δ Υ House
- ce Carl Wilson Gillespie.....*Scotia*.....Λ X A House
- sc William Greely*Fort Plain*.....Δ Φ House
- cl Arthur Daily Greene.....*Franklin*.....Λ X A House
- sc Julian David Hager.....*Cobleskill*.....X Ψ Lodge
- sc William Thompson Hanley.....*Syracuse*.....B Θ Π House
- ce Thurlow Devlin Harter.....*Herkimer*.....Φ Γ Δ House

ee	John Russell Hartman.....	Lebanon, Pa.....	Σ Φ	Place
ls	John Wesley Hoag.....	Schenectady.....	Σ Φ	Place
ce	Francis Edward Holleran, Jr....	Balboa Hts, Canal Z.,		Pyramid Club
sc	Collis Potter Hudson.....	Orlando, Fla.....	25	Eagle St.
ee	Harold Forbell Hyatt.....	Jamaica.....	Ψ T	House
ee	Herbert Leigh Jaycox.....	Beacon.....	Φ Γ Δ	House
ee	Frederic Donald King.....	Clinton.....		N. S. N. C.
ce	Gerald Walter Knapp.....	Watervliet...1517 5th Av.,		W'vliet
cl	William Theodore Knapp.....	Rutland, Vt..1524 3d Av.,		W'vliet
ce	Sol Charles Lefkowitz.....	Rochester.....	Z B T	House
cl	Jerome Loevenheim	Amsterdam.....		M. S. S. C.
sc	Delevan Henry Lyman.....	Lowville.....		Pyramid Club
sc	Varner Merrick Lyman.....	Lowville.....		Pyramid Club
sc	Edward Joynes Macfarlan.....	Darlington, S. C.....	K A	Lodge
sc	Stuart Forbes MacMillan.....	Schenectady.....	Φ Γ Δ	House
ee	Thomas Leo Madden.....	Clyde.....	70	Bedford Rd.
sc	William Edgar Mayer.....	Buffalo.....		Pyramid Club
ce	Ezekiel McCleary	Amsterdam.....	Φ Γ Δ	House
ls	William McCleary	Amsterdam.....	Φ Γ Δ	House
sc	Harold Julius McGee.....	Schenectady.....	Δ T	House
sc	Henry Wilson Micks.....	Seneca Falls.....	A Δ Φ	House
ce	Harold Allen Mills.....	Gloversville.....	Λ X A	House
sc	James Bragdon Mudge.....	Schenectady.....	1103	Nott St.
ce	Arthur Hempstead Newman....	Bridge Hampton....	Φ Γ Δ	House
sc	Charles Folger Oudin.....	Schenectady.....	Σ Φ	Place
sc	Theodore De Cou Palmer, Jr....	East Orange, N. J....	A Δ Φ	House
sc	Harry Van Ness Philip, Jr....	Schenectady.....	Σ Φ	Place
ee	John Poeppel	Rossville, N. Y. C....		Terrace Club
ee	Henry Van de Vere Putman....	Barker.....	802	Campbell Av.
ce	Arthur Rablen	Albany...150 Central Av.,		Albany
ee	Francisco de Castro Ribeiro....	Muas Geraes, Brazil..		M. S. S. C.
ee	Nelson Alden Ripley.....	Morris.....	Φ Δ Θ	House
ce	Harold Percival Rounds.....	Dexter.....		Pyramid Club
ee	George Clemens Baxter Rowe, Jr.,	Philadelphia, Pa..1132		State St.
ce	Leon David Schermerhorn.....	Lake George.....		M. S. S. C.
sc	John Gorton Seabury.....	Ballston Lake.....		Terrace Club
ee	Frank William Seelbinder.....	Somerset.....		Terrace Club

sc	Kenneth Scott Sheldon.....	West Boylston, Mass.	Terrace Club
cl	Elmer Leonard Smith.....	Hageman.....	Pyramid Club
cl	Leo Henry Smith.....	Warrensburgh.....	S. S. N. C.
ee	John Littleton Dawson Speer, Jr.,	Baltimore, Md.....	Σ Φ Place
ee	Fred Griswold Stebbins.....	Little Falls.....	1001 Nott St.
ee	Fred Leland Kasson Swart.....	Auburn.....	S. S. N. C.
sc	Carl John Tell.....	Shorewood, Wis.....	Σ Φ Place
ls	Clement Frank Theisen, Jr.....	Albany.....	Σ Φ Place
ce	Robert Tiel	Middletown.....	2 Gillespie St.
sc	Warren Irving Titus.....	Coxsackie.....	Φ Δ Θ House
cl	Cantine Tremper	Albany.....	Σ Φ Place
ee	Leslie Samuel Uphoff.....	Schenectady.....	122 Avenue B
sc	James Ceylon Van Deusen.....	Cooperstown.....	Φ Δ Θ House
ls	Henry Vaughan	Schenectady.....	17 Eagle St.
sc	Henry Cowles Wadsworth.....	Buffalo.....	A Δ Φ House
ce	William Le Roy Warner.....	Peru.....	Terrace Club
sc	George Alfred Weinhold.....	Schenectady.....	Pyramid Club
sc	Edward Noble Wilkes, Jr.....	Buffalo.....	Δ T House
sc	John Harold Wittner.....	New York City.....	Φ Δ Θ House

Seniors — 87.

Juniors, Class of 1921

ce	Richard Montgomery Allerton..	Brooklyn.....	A Δ Φ House
cl	George De Witt Allison.....	Brooklyn.....	Ψ T House
ee	Malur L. Iyengar Annappa.....	Hassan, India.....	S. S. N. C.
ce	Le Roy Bailey.....	Ballston Lake..	305 Van Vran. Av.
sc	Harold Randolph Baird.....	Amsterdam.....	Φ Γ Δ House
sc	Eugene Bowman Barrett.....	Pine Plains.....	Φ Γ Δ House
ch	Guy Bartlett	Utica.....	Φ Δ Θ House
ee	Douw Frisbie Beekman.....	Middleburgh.....	Ψ T House
ee	Ralph Decker Bennett.....	Williamson.....	N. S. N. C.
ee	Arthur Hamilton Blackburn....	Danbury, Conn....	514 Rugby Rd.
ce	George Metcalfe Bostock.....	Schenectady.....	30 Mynderse St.
ee	George William Brucker.....	Schenectady.....	Δ T House
cl	Bryan Laurence Carpenter....	Schenectady....	1023 Stanford St.
ce	George Wayland Carpenter....	Saratoga Springs...	Δ X A House
ce	Ernest Christman	Johnstown...922	Brandywine Av.
ce	Abram Clark	Gloversville.....	Pyramid Club

<i>cl</i>	Hanford Hillman Closson.....	<i>Schenectady</i>	110	Park Pl.
<i>cl</i>	Stanford Stillman Closson.....	<i>Schenectady</i>	110	Park Pl.
<i>ce</i>	Morris Mandel Cohn.....	<i>Schenectady</i>	432	Pleasant St.
<i>ee</i>	Louis Sullivan Cusato.....	<i>Schenectady</i>	129	Oakwood Av.
<i>ee</i>	Bangalore Narayan Das.....	<i>Bangalore, Mysore, India</i>	S.S.N.C.	
<i>ce</i>	John Luther Davis.....	<i>Erie, Pa</i>	Σ Φ	Place
<i>sc</i>	Lowell Lloyd De Groot.....	<i>Albany</i>	Φ Δ Θ	House
<i>sc</i>	De Witt Greaves Dewey.....	<i>Schenectady</i>	B Θ Π	House
<i>sc</i>	Elton Robert Dickson.....	<i>Hoosick Falls</i>	Λ X A	House
<i>ce</i>	Bradford Dalton Divine.....	<i>Utica</i>	A Δ Φ	House
<i>sc</i>	John Wesley Eddy.....	<i>Saratoga Springs</i>	A Δ Φ	House
<i>cl</i>	Leo Chester Freedman.....	<i>Springfield, Mass.</i>	N. S. N. C.	
<i>ce</i>	Howard Grant Frisbee.....	<i>Delhi</i>		Terrace Club
<i>sc</i>	Warren Sears Gale.....	<i>Newburgh</i>	Φ Γ Δ	House
<i>ee</i>	Frederick L. Ganter.....	<i>Watertown</i>		Terrace Club
<i>sc</i>	Wesley Adam Getman.....	<i>Gloversville</i>	B Θ Π	House
<i>cl</i>	Hobart Frederic Goewey.....	<i>West Chazy</i>	S. S. S. C.	
<i>ee</i>	Homer Pershing Goff.....	<i>Crafton, Pa.</i>	A Δ Φ	House
<i>sc</i>	Robert Douglas Gregory.....	<i>Newark, N. J.</i>	B Θ Π	House
<i>ee</i>	Walter Anthony Haberbush....	<i>Gloversville</i>	Δ T	House
<i>ee</i>	Henry Irving Halpert.....	<i>Glens Falls</i>	S. S. N. C.	
<i>cl</i>	Marshall Hawkes	<i>Waverly</i>	Ψ T	House
<i>cl</i>	Arthur Ward Hendrickson....	<i>Queens</i>	Ψ T	House
<i>ee</i>	Howard Arnold Hendrickson...	<i>Chatham</i>		Terrace Club
<i>sc</i>	Theron Hoyt	<i>Albany</i>	B Θ Π	House
<i>sc</i>	William Proudman Husted....	<i>Delmar</i>	Φ Δ Θ	House
<i>ee</i>	George Hughes	<i>Flushing</i>	K A	Lodge
<i>sc</i>	Montgomery Burkin Hulsapple.	<i>Watervliet</i>	Ψ T	House
<i>ce</i>	Antonio Ippolito	<i>Sao Paulo, Brazil</i> ..	740	Eastern Av.
<i>ee</i>	Harold Jaeger	<i>Brooklyn</i>		North Colonnade
<i>sc</i>	Gordon Park James.....	<i>Albany</i>	Δ T	House
<i>cl</i>	Leslie Webber Jones.....	<i>Schenectady</i>	109	Front St.
<i>sc</i>	Wolcott Leander Jones.....	<i>Albany</i>	B Θ Π	House
<i>ls</i>	Stanley Stern Joseph.....	<i>Schenectady</i>	133	Park Av.
<i>cl</i>	Edwin Oliver Kennedy.....	<i>Johnstown</i>	Δ T	House
<i>cl</i>	George Edward McDonald King.	<i>Schenectady</i>	Z B T	House
<i>sc</i>	Frank Pauley Knack.....	<i>Gloversville</i>	Δ Φ	House
<i>ce</i>	Walker Bevens Lounsbury.....	<i>Randall</i>		North Colonnade

ee	Earl Victor Mace.....	Keeseville.....	Δ Φ House
ee	Joseph Francis Manion.....	Ferndale.....	Δ T House
cl	Frank Rollin McAllester.....	Lake View.....	Pyramid Club
sc	Crawford McChesney	Schenectady.....	Δ T House
ee	Robert Phillips McClellan.....	Nassau.....	Ψ T House
ee	James Louis McMurray.....	Wildwood, N.J..	North Colonnade
sc	Robert Allen Notman.....	Springfield, Mass....	A Δ Φ House
sc	Donald Francis O'Brien.....	Fulton.....	A Δ Φ House
cl	Ralph Samuel Getman Parent..	Tribes Hill.....	Pyramid Club
ee	Nerses Partikian	New York City..	North Colonnade
ce	Joseph Armstrong Patterson..	Mineola.....	Terrace Club
sc	Ralph Alonzo Peters.....	Schenectady...51	Washington Av.
cl	Montgomery Gilchrist Potter...	Hartford, Conn.....	X Ψ Lodge
ee	Joseph Wendell Putman.....	Schenectady.....	X Ψ Lodge
ce	Lawrence Cortelyou Rapelje...	Hopewell Junction...	Φ Γ Δ House
sc	Harry Albert Reoux.....	Warrensburgh.....	Δ Φ House
sc	John Michael Reynolds.....	Fulton.....	Φ Δ Θ House
ce	Thomas Wilgus Reynolds.....	Lexington, Ky.....	Φ Γ Δ House
sc	Ormonde Lyndon Rolls.....	Saratoga Springs.....	Δ T House
sc	John James Francis Rooney....	Albany.....	Φ Δ Θ House
ch	Rudolph Albert Schatzel.....	Schenectady.....	455 Hulett St.
ee	Vincent Allen Sheals.....	Schenectady...1610	Eastern P'k'y
sc	David Winne Sherwood.....	Ballston Spa.....	Ψ T House
sc	Max Michael Simon.....	Poughkeepsie.....	S. S. N. C.
ce	Seymour Ralph Smith.....	Oakville, Conn.....	Pyramid Club
sc	Edgar William Snell.....	Schenectady...Stop 6,	Albany Rd.
sc	Paul Hopkins Stevens.....	Newark.....	B Θ Π House
sc	Alexander Stewart	Rochester.....	Φ Γ Δ House
cl	David Merlin Taylor.....	Lansboro, Pa.....	33 Wendell Av.
ee	Frederic de Peyster Townsend..	Negaunee, Mich.....	Σ Φ Place
cl	John Doyle Tracy.....	Amsterdam.....	Φ Δ Θ House
sc	William Henry Tregurtha.....	Schenectady...37	Parkwood Blvd.
sc	John Earle Vaughan.....	Fort Ann.....	Φ Γ Δ House
cl	Raymond Gillespie Walker....	Franklin.....	S. S. S. C.
sc	Edward Gilbert Walsh.....	Schenectady.....	118 Rankin Av.
cl	John Herbert Wemple.....	Schenectady.....	Δ Φ House
ch	Thomas Hoyt Wilber.....	Schenectady.....	X Ψ Lodge
ch	Anthony Casimere Zachlin.....	Reading, Pa.....	N. S. N. C.

Sophomores, Class of 1922

<i>en</i>	Milton Jacob Ackerman.....	<i>St. Johnsville</i>	K A Lodge
<i>ch</i>	John Leon Alden.....	<i>Binghamton</i>	Pyramid Club
<i>pm</i>	Philip Daly Allen.....	<i>Schuyler Lake</i>	Terrace Club
<i>en</i>	John Crawford Anderson.....	<i>Schenectady</i>	Σ Φ Place
<i>pm</i>	Samuel Eldridge Armstrong....	<i>Greenwich</i>	Δ T House
<i>en</i>	Augustus Henry Arriens.....	<i>Canajoharie</i>	N. S. N. C.
<i>ls</i>	Ernest Bradford Augur.....	<i>Hartwick</i>	Φ Γ Δ House
<i>en</i>	Albert Phillips Bantham.....	<i>Schenectady</i> ..220	Parkwood Blvd.
<i>sc</i>	Robert Eglinton Barron.....	<i>Schenectady</i>	Ψ T House
<i>sc</i>	Francis Bartley	<i>Schenectady</i>	K A Lodge
<i>en</i>	Harold Griswold Beebe.....	<i>Cutchogue</i>	16 Gillespie St.
<i>ch</i>	Charles Ernest Beedleson.....	<i>Schenectady</i>	535 Lenox Rd.
<i>en</i>	Alan Dakin Benjamin.....	<i>Port Richmond</i>	Δ Φ House
<i>cl</i>	John Alden Bennett.....	<i>Montclair, N. J.</i>	A Δ Φ House
<i>en</i>	La Verne Adelbert Bertsch....	<i>Schenectady</i>	5 Charles St.
<i>cl</i>	Harold Isaac Blessing.....	<i>Schenectady</i>	801 State St.
<i>en</i>	James Willard Blewer.....	<i>Albany</i>	Δ Φ House
<i>pm</i>	James Lewis Bolton.....	<i>Beacon</i>	K A Lodge
<i>sc</i>	Leo Henry Bombard.....	<i>Fort Edward</i>	Pyramid Club
<i>en</i>	Anthony Patrick Jos. Boudreau.	<i>Schenectady</i>	510 Rugby Rd.
<i>en</i>	Lawrence Seward Bourst.....	<i>Ballston Spa</i>	16 Gillespie St.
<i>en</i>	Maxwell Harry Bricks.....	<i>Skillman, N. J.</i>	M. S. S. C.
<i>en</i>	John Elmer Broderson.....	<i>Schenectady</i>	14 Spruce St.
<i>sc</i>	Sidney Liston Brown, Jr.....	<i>Flatbush</i>	Ψ T House
<i>en</i>	Joseph Brucker, Jr.....	<i>Schenectady</i>	Δ T House
<i>pm</i>	Frank Augustus Butler.....	<i>Waterford</i>	829 Union St.
<i>en</i>	John Francis Campbell.....	<i>Schenectady</i> ..139	Parkwood Bldv.
<i>sc</i>	Hugh Cady Campfield.....	<i>Washington, D. C.</i> ..	B Θ Π House
<i>pm</i>	Joseph Camprone, Jr.....	<i>Troy</i>	1545 5th Av., Troy
<i>en</i>	Timothy John Carroll.....	<i>Ticonderoga</i>	N. S. N. C.
<i>pm</i>	Alexander Francis Carson.....	<i>Oneonta</i>	M. S. S. C.
<i>sc</i>	Allan Landon Cass.....	<i>Albany</i>	Δ T House
<i>en</i>	Raymond Frank Cassidy.....	<i>Gloversville</i>	B Θ Π House
<i>en</i>	Thomas Chann	<i>Peking, China</i> ..27	Washington Av.
<i>sc</i>	Ralph Kingsley Chase.....	<i>Schenectady</i>	Δ X A House
<i>sc</i>	Richard Rush Church.....	<i>Afton</i>	Δ T House
<i>en</i>	Bertrand Mosher Clark.....	<i>Amsterdam</i>	Φ Γ Δ House

<i>sc</i>	John Humphrey Cline.....	<i>Amsterdam</i>	Φ Γ Δ House
<i>sc</i>	Timothy Francis Cohan.....	<i>Amsterdam</i>	M. S. S. C.
<i>en</i>	Andries Miller Cole.....	<i>Pine Hill</i>	Δ Υ House
<i>sc</i>	John Cyril Collins.....	<i>Schenectady</i>	620 State St.
<i>sc</i>	John William Cox.....	<i>Pattersonville</i>	X Ψ Lodge
<i>en</i>	John Westbrook Dain.....	<i>Peekskill</i>	Φ Δ Θ House
<i>pm</i>	Orrin Penfield Dales.....	<i>Schenectady</i>	13 Waverly Pl.
<i>en</i>	Parker Jonathan Davies.....	<i>Granville</i>	B Θ Π House
<i>sc</i>	Roderick Davis, Jr.....	<i>Loudonville</i>	X Ψ Lodge
<i>en</i>	Benjamin Everett Dean.....	<i>Masonville</i>	Φ Γ Δ House
<i>ch</i>	Clarence Chester Dean.....	<i>Schenectady</i>	Φ Δ Θ House
<i>sc</i>	William Rufus Dodge.....	<i>Schenectady</i>	B Θ Π House
<i>sc</i>	Francis Edward Drohan.....	<i>Schenectady</i>	B Θ Π House
<i>sc</i>	Albert Wynkoop Du Bois.....	<i>Catskill</i>	Ψ Υ House
<i>en</i>	Watson Potter Dutton.....	<i>Schenectady</i> ..	Stop 6, Albany Rd.
<i>en</i>	Harold Frederick Eberle.....	<i>Old Chatham</i>	643 Terrace Pl.
<i>en</i>	John Ensign	<i>Cambridge</i>	842 Union St.
<i>en</i>	John Wesley Ensign.....	<i>Rotterdam Junction</i> ..	Δ X A House
<i>en</i>	Edward Wilson Erdman.....	<i>Hartford, Conn.</i>	A Δ Φ House
<i>cl</i>	Louis Faber	<i>Schenectady</i>	137 So. Ferry St.
<i>sc</i>	Robert Roy Faust.....	<i>Schenectady</i>	A Δ Φ House
<i>ch</i>	Alan Currie Ferguson.....	<i>Schenectady</i> ..	137 Parkwood Blvd.
<i>en</i>	Raymond Thomas Fleming.....	<i>Johnstown</i>	Terrace Club
<i>sc</i>	Philip Louis Forster.....	<i>Albany</i>	Z B T House
<i>sc</i>	Harry Charles Foster, Jr.....	<i>Oak Park, Ill.</i>	Φ Δ Θ House
<i>sc</i>	Casmir Alexander Frantzke....	<i>Schenectady</i>	Δ X A House
<i>en</i>	Harold Pyne Fraser.....	<i>Johnstown</i>	Terrace Club
<i>cl</i>	Harold David Freedman.....	<i>Springfield, Mass.</i>	N. S. N. C.
<i>sc</i>	George Calvin Gates.....	<i>Watertown</i>	Terrace Club
<i>en</i>	Raymond Edward Gesell.....	<i>South Lima</i>	Φ Δ Θ House
<i>pm</i>	Judson Bennett Gilbert.....	<i>Schenectady</i>	1007 Nott St.
<i>en</i>	Harold Henwood Gillespie....	<i>Allentown, Pa.</i>	Ψ Υ House
<i>pm</i>	Grant Fred Glassbrook.....	<i>Corinth</i>	Old Gym Dormitory
<i>ch</i>	William Joseph Gottsegen.....	<i>Schenectady</i>	510 Summit Av.
<i>en</i>	Clarence Milton Gregg.....	<i>Schenectady</i>	608 Crane St.
<i>en</i>	Laurence John Griswold.....	<i>Herkimer</i>	N. S. N. C.
<i>pm</i>	Herbert Corle Hageman.....	<i>Claverack</i>	1007 Nott St.
<i>ls</i>	Nathan Hale	<i>Schenectady</i>	A Δ Φ House

<i>en</i>	Earl Hane	<i>Schenectady</i>	38 Willett St.
<i>pm</i>	Charles Howard Harbinson....	<i>Rensselaer</i> ..	1247 B'way, Renssel'r
<i>en</i>	Hilton Hubbell Harris.....	<i>Schenectady</i>	21 Bedford Rd.
<i>cl</i>	John Elder Harvey.....	<i>Schenectady</i>	731 Nott St.
<i>en</i>	Edward Garrison Haven.....	<i>Waterville</i>	A Δ Φ House
<i>sc</i>	Edward Peter Hewlett.....	<i>Schenectady</i>	Δ Φ House
<i>en</i>	Archie Samuel Holmes.....	<i>Downsville</i>	B Θ Π House
<i>sc</i>	Edward Becker Horning.....	<i>Fultonville</i>	729 Hattie St.
<i>ch</i>	Raymond Henry Horstman....	<i>Schenectady</i>	18 Barrett St.
<i>sc</i>	Edward Everett Houck.....	<i>Ballston Lake</i>	Ψ T House
<i>en</i>	Ernest Smith Humphrys, Jr....	<i>La Grange, Ill.</i>	X Ψ Lodge
<i>sc</i>	Henry Dunham Hunt.....	<i>Albany</i>	Δ Φ House
<i>pm</i>	Francis James Hyland.....	<i>Gloversville</i>	Terrace Club
<i>en</i>	Carlton Burton Jansen.....	<i>Fonda</i>	Pyramid Club
<i>sc</i>	Graham Bruner Jeffrey.....	<i>Albany</i>	Δ T House
<i>ch</i>	Roland Lewis Johnston.....	<i>Schenectady</i>	1578 State St.
<i>en</i>	Linn Milton Jones.....	<i>Kortright</i>	8 Van Vranken Av.
<i>pm</i>	Robert Waits Jones.....	<i>Watertown</i>	Ψ T House
<i>ch</i>	Henry Russell Kelly.....	<i>So. Schenectady</i> ..	<i>So. Schenectady</i>
<i>en</i>	James Robert Kelsey.....	<i>Portland, Me.</i>	B Θ Π House
<i>en</i>	Wendell Wilfred King.....	<i>No. Troy</i> ..	778 1st Av., No. Troy
<i>sc</i>	George Frank Kinney.....	<i>Hudson Falls</i> ..	1500 Eastern P'k'y
<i>ch</i>	Gabriel Kirzenbaum	<i>Rochester</i>	Z B T House
<i>ch</i>	Frederic Morris Klein.....	<i>Schenectady</i>	39 Third Av.
<i>cl</i>	Charles Calvin Knight.....	<i>Peekskill</i>	Φ Δ Θ House
<i>en</i>	Nathan Krause	<i>Schenectady</i>	921 Emmett St.
<i>sc</i>	James Hutchins La Pan.....	<i>Saranac Lake</i>	105 Nott Ter.
<i>en</i>	Arthur Paul Leary.....	<i>Richfield Springs</i>	Terrace Club
<i>sc</i>	Charles Theodore Locke.....	<i>Ticonderoga</i>	Φ Γ Δ House
<i>sc</i>	William Gerald Lucas.....	<i>Gloversville</i>	B Θ Π House
<i>en</i>	Addison Mallery	<i>Saratoga Springs</i>	Δ Φ House
<i>pm</i>	Charles Edward Martin.....	<i>Schenectady</i>	23 Park Pl.
<i>en</i>	Harold Hall McQueen.....	<i>Amsterdam</i>	S. S. N. C.
<i>en</i>	David Miller, Jr.....	<i>Schenectady</i>	115 Victory Av.
<i>pm</i>	Abraham Milstein	<i>Albany</i> ..	221 So. Pearl St., Albany
<i>en</i>	Frank James Moles.....	<i>Schenectady</i> ..	115 Helderberg Av.
<i>en</i>	William Reginald Moreland....	<i>Jersey City, N. J.</i>	K A Lodge
<i>ch</i>	Stanley Owen Morgan.....	<i>Schenectady</i>	32 N. Dean St.

<i>en</i>	Merton David Morse.....	<i>Denver</i>	N. S. N. C.
<i>sc</i>	Leland William Mosher.....	<i>Northville</i>	B Θ II House
<i>pm</i>	Walter Charles Mott.....	<i>Schenectady</i>	Δ Φ House
<i>pm</i>	William George Mulvey.....	<i>Buffalo</i>	829 Union St.
<i>ls</i>	John Harris Murray, Jr.....	<i>Waverly</i>	Ψ T House
<i>en</i>	Ira Rodgers Nelson.....	<i>South Orange, N. J.</i>	Δ T House
<i>ch</i>	Leon Samuel Nie.....	<i>Schenectady</i>	135 University Pl.
<i>sc</i>	Carl James Niess.....	<i>Boonville</i>	20 N. Church St.
<i>sc</i>	Arthur Laine Notman.....	<i>Springfield, Mass.</i>	A Δ Φ House
<i>sc</i>	Isadore Olinsky	<i>Schenectady</i>	429 Summit Av.
<i>en</i>	Anthony James Palermo.....	<i>Schenectady</i>	7 N. Wendell Av.
<i>en</i>	Louis Parillo	<i>Schenectady</i>	10 Romeyn St.
<i>en</i>	Robert George Owen Parry....	<i>Clinton</i>	N. S. N. C.
<i>ls</i>	Stanley Jameson Patrick.....	<i>Westfield, N. J.</i>	M. S. S. C.
<i>pm</i>	Robert Henry Pidge.....	<i>Fultonville</i>	Fultonville
<i>en</i>	John Porter	<i>Wellesley, Mass.</i>	K A Lodge
<i>pm</i>	Frederick John Pratt.....	<i>Whitehall</i>	200 Avenue A
<i>sc</i>	Willard Francis Prior.....	<i>Hillsdale</i>	Terrace Club
<i>pm</i>	Irving Jacob Rabiner.....	<i>Brooklyn</i>	M. S. S. C.
<i>sc</i>	George Israel William Racette..	<i>Schenectady</i>	Δ X A House
<i>en</i>	Herbert William Reutersham... <i>Sag Harbor</i>	Δ X A House	
<i>sc</i>	William Lee Richards.....	<i>Glens Falls</i>	Ψ T House
<i>ch</i>	Louis James Rinaldi.....	<i>Schenectady</i>	219 Front St.
<i>sc</i>	Charles Warren Ring.....	<i>Pleasant Brook</i>	Φ Δ Θ House
<i>pm</i>	Pasquale Anthony Rizzo.....	<i>Schenectady</i>	5 Congress St.
<i>en</i>	Howard Flint Robinson.....	<i>Delhi</i>	Terrace Club
<i>en</i>	Fred Adam Roser.....	<i>Herkimer</i>	N. S. N. C.
<i>pm</i>	Dominick Edward Rowan.....	<i>Stapleton</i>	157 Nott Ter.
<i>en</i>	James Darius Royce.....	<i>Palmer, Mass.</i>	Pyramid Club
<i>pm</i>	Karl Thomas Sanford.....	<i>Albany</i> ..	595 Central Av., Albany
<i>sc</i>	Victor Herman Scales.....	<i>Glens Falls</i>	Δ Φ House
<i>en</i>	Henry Samuel Scherer.....	<i>Mt. Vernon</i>	Z B T House
<i>en</i>	Roland Earl Schermerhorn....	<i>Schenectady</i>	Φ Γ Δ House
<i>sc</i>	Irving Schwartz	<i>Poughkeepsie</i>	Z B T House
<i>sc</i>	Lewis Beck Sebring, Jr.....	<i>Schenectady</i>	320 Summit Av.
<i>pm</i>	Isaac Shapiro	<i>Schuylerville</i>	M. S. S. C.
<i>pm</i>	Bernard Nathan Silberg.....	<i>Albany</i>	188 So. Pearl St.
<i>sc</i>	Wesley Parker Small.....	<i>Herkimer</i>	Δ Φ House

<i>ch</i>	Floyd Arthur Smith.....	<i>Schenectady</i> ...	41 Parkwood Blvd.
<i>en</i>	George Joseph Smith.....	<i>Watertown</i>	Terrace Club
<i>ch</i>	Floyd Edward Snyder.....	<i>Cobleskill</i>	Terrace Club
<i>en</i>	David Strain	<i>Albany</i>	270 Yates St., Albany
<i>en</i>	William Henry Stringfellow...	<i>Schenectady</i> ...	123 Parkwood Blvd.
<i>sc</i>	Eugene Francis Sullivan.....	<i>Fulton</i>	Φ Δ Θ House
<i>ch</i>	Arthur Winston Taber.....	<i>Schenectady</i>	1006 Albany St.
<i>ch</i>	Harold Isaac Thorp.....	<i>Shelburne, Vt.</i>	Σ Φ Place
<i>pm</i>	Arthur James Townley.....	<i>Schenectady</i>	301 Victory Av.
<i>ch</i>	Benno James Troidle.....	<i>Albany</i>	829 Union St.
<i>en</i>	Carey Chamberlain Tubbs.....	<i>Cooperstown</i>	910 Union St.
<i>en</i>	Joseph Fernando Tude.....	<i>Bahia, Brazil</i>	740 Eastern Av.
<i>en</i>	Richard Eugene Van Ness....	<i>Cobleskill</i>	Ψ Υ House
<i>sc</i>	Archibald McIntyre Veghte...	<i>Johnstown</i>	Δ Φ House
<i>sc</i>	Alfred Mace Wade.....	<i>Albany</i>	Δ Υ House
<i>sc</i>	Ernst Kasper Wahl.....	<i>Chicago</i>	Φ Γ Δ House
<i>en</i>	Spencer Kellogg Warnick, Jr...	<i>Amsterdam</i>	Α Δ Φ House
<i>sc</i>	George Dean Waterman.....	<i>Little Falls</i>	Δ Υ House
<i>en</i>	Joseph Louis Weinert, Jr....	<i>New York City</i>	Φ Δ Θ House
<i>en</i>	Henry Phillips Wiencke.....	<i>Schenectady</i>	28 Jay St.
<i>sc</i>	Exton Parsons Wilber.....	<i>Gouverneur</i>	Δ Φ House
<i>ch</i>	Paul Mead Wilber.....	<i>Schenectady</i>	X Ψ Lodge
<i>en</i>	Theodore Frame Wilson.....	<i>Schenectady</i>	7 Avon Rd.
<i>en</i>	Howard Ferris Witherhead...	<i>Ogdensburg</i>	Terrace Club
<i>en</i>	Herman Ferdinand Yotz.....	<i>Otego</i>	910 Union St.
<i>cl</i>	John Howarth Young.....	<i>Schenectady</i> ...	35 Glenwood Blvd.
<i>en</i>	Carl William Zemke.....	<i>Schenectady</i>	55 Euclid Av.

Sophomores — 178.

Freshmen, Class of 1923

<i>pm</i>	Horton Adams	<i>Mongaup</i>	S. S. N. C.
<i>en</i>	Clark Clute Aitken.....	<i>Schenectady</i>	22 Union Av.
<i>ch</i>	George Anderson	<i>Schenectady</i>	6 Van Auler Av.
<i>pm</i>	John Thomas Anderson.....	<i>Schenectady</i>	415 Victory Av.
<i>en</i>	James Armstrong	<i>Cobleskill</i>	141 Elmer Av.
<i>en</i>	Hamilton Armstrong	<i>Fayetteville</i>	105 Seward Pl.
<i>en</i>	Lewis Havens Avery.....	<i>Seneca Falls</i> ...	Old Gym, Dormt'y

<i>ch</i>	Stephen Leon Bailey.....	<i>Schenectady</i>	212 Avenue B
<i>en</i>	Clifford Earl Barker.....	<i>Richmond Hill</i>	B Θ II House
<i>en</i>	Douglas Langley Barrett.....	<i>Katonah</i>	K A Lodge
<i>en</i>	Wallace Huldie Barrett.....	<i>Saratoga Spgs.</i>	Old Gym Dormt'y
<i>pm</i>	Joseph Ira Barrie.....	<i>Schuylerville</i>	818 Grant Av.
<i>en</i>	Henry Howell Bartlett.....	<i>Poughkeepsie</i>	A Δ Φ House
<i>en</i>	Solon Collamer Bartlett.....	<i>Schenectady</i>	20 Lowell Rd.
<i>cl</i>	John Richard Bauchelle.....	<i>Newark, N. J.</i>	B Θ II House
<i>en</i>	George Ross Beach.....	<i>Ballston Spa</i>	A Δ Φ House
<i>en</i>	George William Bee.....	<i>Schenectady</i>	4 Elmer Av.
<i>sc</i>	Leland Behr	<i>Amsterdam</i>	346 Summit Av.
<i>en</i>	Raymond Israel Belanger.....	<i>Cohoes</i>	1 Forest Av., Cohoes
<i>pm</i>	Harold Bellin	<i>Albany</i>	72 Westerlo St., Albany
<i>en</i>	Arthur Herbert Benedict.....	<i>Geneva</i>	834 Union St.
<i>en</i>	Jetson Oliver Bentley.....	<i>Schenectady</i>	Eastholm Rd.
<i>pm</i>	Jacob Berg	<i>N. York City</i>	187 Lake St., Alb'y
<i>en</i>	Francis Michler Bishop.....	<i>Schenectady</i>	A Δ Φ House
<i>sc</i>	Herman Bradt	<i>Amsterdam</i>	S. S. S. C.
<i>en</i>	Kenneth Milburn Briggs.....	<i>Rochester</i>	Δ T House
<i>sc</i>	Frederick Lidell Bronner.....	<i>Richfield Springs</i>	Δ T House
<i>en</i>	Herbert Lawrence Brown.....	<i>Adams, Mass.</i>	S. S. N. C.
<i>ch</i>	Kenneth Seabury Brundige.....	<i>Scotia</i>	71 Bruce St., Scotia
<i>en</i>	Irving Edward Bullard.....	<i>Holyoke, Mass.</i>	602 Union St.
<i>sc</i>	George Andrew Burgin.....	<i>Albany</i>	Φ Δ Θ House
<i>ch</i>	John Burnham	<i>Schenectady</i>	Myron St.
<i>sc</i>	Donald Forrester Cameron.....	<i>Amsterdam</i>	Φ Γ Δ House
<i>sc</i>	John Miles Cantwell, Jr.....	<i>Malone</i>	Σ Φ Place
<i>en</i>	Raynard Denaratius Carlson....	<i>Manchester, N. H.</i>	917 Stanley St.
<i>sc</i>	John Ditmars Carpenter.....	<i>Jamaica</i>	Ψ T House
<i>en</i>	Richard Page Carter.....	<i>Nutley, N. J.</i>	66 Bedford Rd.
<i>pm</i>	Edward Hubert Cashion.....	<i>Albany</i>	1 State St.
<i>en</i>	William John Caward.....	<i>Cohocton</i>	1230 Union St.
<i>sc</i>	John Fraser Clark.....	<i>Albany</i>	X Ψ Lodge
<i>en</i>	Kenneth Boyd Clarke.....	<i>Schenectady</i>	1106 Nott St.
<i>cl</i>	Russell Benham Cline.....	<i>Rochester</i>	Ψ T House
<i>sc</i>	Kenneth Charles Clowe.....	<i>Schenectady</i>	131 Glenwood Blvd.
<i>pm</i>	Benjamin Friedland Cohen.....	<i>Albany</i>	49 Green St., Albany
<i>en</i>	Elias Israel Cohen.....	<i>Schenectady</i>	858 Emmett St.

<i>ch</i>	Milton Cohn	<i>Schenectady</i>	26 Chestnut St.
<i>en</i>	Fraser Mills Cole.....	<i>Kalamazoo, Mich</i>	Σ Φ Place
<i>en</i>	Harold George Connor.....	<i>North Troy</i>	Δ X Δ House
<i>sc</i>	Roger Clayton Conover.....	<i>Amsterdam</i>	Ψ T House
<i>ch</i>	David Bigelow Cook.....	<i>Albany</i>	Φ Γ Δ House
<i>sc</i>	Milton Kendell Cox.....	<i>Schenectady</i> ...	43 Parkwood Blvd.
<i>en</i>	Harry Cregier	<i>Schenectady</i>	R. F. D. No. 1
<i>en</i>	George Wallace Cullings.....	<i>Delanson</i>	100½ Union St.
<i>pm</i>	John Joseph Curley.....	<i>Troy</i>	138 President St., Troy
<i>en</i>	Leland Salisbury Daily.....	<i>Mt. Lake</i>	Δ T House
<i>pm</i>	Max Dansky	<i>Port Richmond</i>	143 Nott Ter.
<i>en</i>	Robert Le Roy Davis.....	<i>Morristown, N. J.</i>	Σ Φ Place
<i>sc</i>	Perry Emigh Deane.....	<i>Hillsdale</i>	Terrace Club
<i>pm</i>	John Kenneth Francis Deegan..	<i>Newburgh</i>	North Colonnade
<i>sc</i>	Kenneth Barker Devlin.....	<i>Niagara Falls</i>	Σ Φ Place
<i>en</i>	John Vincent Dolan.....	<i>Saranac Lake</i>	28 Union Av.
<i>sc</i>	Donald Templar Dold.....	<i>Buffalo</i>	A Δ Φ House
<i>en</i>	Joseph Tinning Donnan.....	<i>Schenectady</i> ...	602 Campbell Av.
<i>en</i>	Bernard Lincoln Doxtater.....	<i>Evans Mills</i> ...	413 McClellan St.
<i>cl</i>	William Richard Galt Duane...	<i>New York City</i>	Σ Φ Place
<i>pm</i>	Alfred Francis Dundon.....	<i>Troy</i>	1631 Fifth Av., Troy
<i>en</i>	George Haswell Eaton.....	<i>Albany</i>	Grand Blvd.
<i>en</i>	Herbert Threlkeld Edwards, Jr.	<i>Bethlehem, Pa.</i>	Δ Φ House
<i>sc</i>	Arthur Malleson Emmerling...	<i>Albany</i>	Φ Γ Δ House
<i>en</i>	Edward Charles Engel.....	<i>Schenectady</i>	947 Albany St.
<i>pm</i>	Bernard John Falvey.....	<i>Glens Falls</i>	808 State St.
<i>en</i>	Jerry Albert Farone.....	<i>Schenectady</i>	141 Romeyn St.
<i>pm</i>	William Edward Felson.....	<i>Schenectady</i>	305 Victory Av.
<i>pm</i>	Isidore Fischer	<i>New York City</i> ...	136 Prospect St.
<i>en</i>	Eugene Stevens Fisher.....	<i>Englewood, N. J.</i>	M. S. S. C.
<i>pm</i>	William Francis Fisher.....	<i>Carmen</i>	Carmen
<i>en</i>	Carl Lewis Forshee.....	<i>Seneca Falls</i> ...	Old Gym Dormit'y
<i>sc</i>	Samuel Byrod Fortenbaugh, Jr.	<i>Schenectady</i>	115 Elmer Av.
<i>en</i>	Wallace Van Rensselaer Fretts.	<i>New Hartford</i>	Φ Γ Δ House
<i>sc</i>	Samuel Friedman	<i>Poughkeepsie</i>	S. S. N. C.
<i>en</i>	David Louis Gallup.....	<i>Albany</i>	34 Cherry St., Albany
<i>pm</i>	Eugene Frederick Galvin.....	<i>Cadyville</i>	Terrace Club
<i>pm</i>	Thomas Joseph Galvin.....	<i>Troy</i>	183 Nott Ter.

<i>en</i>	Leonard Joseph Gans.....	<i>Lynchburg, Va.....</i>	Z B T House
<i>en</i>	Charles Edward Gardiner, Jr....	<i>Johnstown.....</i>	1211 Union St.
<i>pm</i>	John Garrity	<i>Schenectady.....</i>	107 Wendell Av.
<i>sc</i>	Burdett Gibson	<i>Schenectady.....</i>	A Δ Φ House
<i>en</i>	Delwin Harold Gidley.....	<i>Cobleskill.....</i>	841 Union St.
<i>sc</i>	Richard Lee Gilson.....	<i>Niskayuna</i>	Niskayuna
<i>en</i>	Joseph Albert Gott.....	<i>Nutley, N. J.....</i>	Λ X A House
<i>en</i>	William Edward Graham.....	<i>Schenectady.....</i>	2 Beaver St.
<i>pm</i>	Albert Lewis Gray.....	<i>Rensselaer</i>	Rensselaer
<i>en</i>	Walter John Greskowiak.....	<i>Schenectady.....</i>	806 Strong St.
<i>cl</i>	Francis Hanmer Griswold.....	<i>Slingerlands.....</i>	X Ψ Lodge
<i>ch</i>	Everett Helling Grupe.....	<i>Schenectady.....</i>	627 Chapel St.
<i>cl</i>	Edward Fitch Hall.....	<i>Wilkesburg, Pa.....</i>	A Δ Φ House
<i>en</i>	Gilbert Earl Halstead.....	<i>Newburgh.....</i>	North Colonnade
<i>sc</i>	Wesley Clay Hanks.....	<i>Powers Lake, N. D..</i>	Φ Γ Δ House
<i>pm</i>	Floyd Andrew Hare.....	<i>Amsterdam.....</i>	220 Holland Rd.
<i>en</i>	Elmer Heidorf	<i>Hudson Falls.....</i>	Ψ T House
<i>en</i>	Norman Garrett Heim.....	<i>East Aurora.....</i>	B Θ II House
<i>en</i>	Judson Clifford Heindel.....	<i>Albany..</i>	28 So. Pine Av., Albany
<i>ch</i>	Robert Antrim Heller.....	<i>Brooklyn.....</i>	313 Avenue A
<i>sc</i>	Eugene Hellmich	<i>Schenectady.....</i>	R. F. D. No. 4
<i>en</i>	Rutson Rudolph Henderson....	<i>Bloomville....</i>	8 Van Vranken Av.
<i>en</i>	Louis Scott Henshaw.....	<i>New Rochelle.....</i>	X Ψ Lodge
<i>en</i>	Charles Ellis Hesner.....	<i>Schenectady.....</i>	1311 Albany St.
<i>en</i>	John Hewlett	<i>Schenectady.....</i>	61 Ballston Rd.
<i>sc</i>	Clifton Alfred Nicholas Hill....	<i>Amsterdam..</i>	Old Gym Dormitory
<i>en</i>	Anthony de Hothleigh Hoadley.	<i>Swathmore, Pa.....</i>	K A Lodge
<i>en</i>	Albert Hochuli	<i>East Orange, N. J..</i>	B Θ II House
<i>ch</i>	John Clark Holmes.....	<i>Kotonah.....</i>	K A Lodge
<i>pm</i>	Joseph L. Holohan.....	<i>Waterford</i>	Waterford
<i>cl</i>	Edward Niles Hooker.....	<i>Schenectady.....</i>	209 Becker St.
<i>en</i>	Ernest Morell Hotaling.....	<i>Cooperstown.....</i>	Δ T House
<i>sc</i>	Caryl Greely Howe.....	<i>Schenectady.....</i>	109 Waverly Pl.
<i>en</i>	William Lawrence Howlett....	<i>Utica.....</i>	X Ψ Lodge
<i>pm</i>	John Alvin Huffmire.....	<i>Schenectady.....</i>	6 Furman St.
<i>sc</i>	Eugene Hulshizer	<i>Bernardsville, N. J....</i>	X Ψ Lodge
<i>en</i>	Albert Wallace Hutchinson.....	<i>Portland, Me.....</i>	No. Colonnade
<i>en</i>	William Earl Jackman.....	<i>Newark.....</i>	B Θ II House

<i>en</i>	Morris Jaffe	<i>Washington, D. C.</i>	411	Hulett St.
<i>en</i>	John Robert Johnson.....	<i>Andes</i>	637	Terrace Pl.
<i>ch</i>	Donald Jones	<i>Albany</i>	X Ψ	Lodge
<i>pm</i>	Stanley Pritchard Jones.....	<i>Schenectady</i>	401	Lenox Rd.
<i>en</i>	Douglas White Joslyn.....	<i>Albany</i>	Ψ T	House
<i>sc</i>	Francis Joseph Jutras.....	<i>Schenectady</i>	413	Lenox Rd.
<i>en</i>	John Anthony Carty Kavanagh.....	<i>New York City</i>	19	Eagle St.
<i>sc</i>	Russell Harter Kay.....	<i>Herkimer</i>	Δ Φ	House
<i>cl</i>	Charles Welles Kintner.....	<i>Athens, Pa.</i>	Ψ T	House
<i>en</i>	Harry Julius Kratorville.....	<i>Riverhead</i>	B Θ II	House
<i>pm</i>	Victor Stephen Kiviatkowski.....	<i>Schenectady</i>	15	Jefferson St.
<i>pm</i>	Chester William Krusie.....	<i>Schenectady</i>	209	Avenue A
<i>en</i>	Elmer Edward Kruse.....	<i>Schenectady</i>	113	Avenue B
<i>pm</i>	Ray Bement Leavett.....	<i>Scotia</i>	Lindsay Av.,	Scotia
<i>en</i>	George Anthony Lenz.....	<i>Schenectady</i>	R. F. D. No. 6	
<i>en</i>	Edward Charles de Lima.....	<i>New York City</i>	Ψ T	House
<i>sc</i>	Henry Robert Loomis.....	<i>Burlington, Vt.</i>	Φ Δ Θ	House
<i>sc</i>	James Love	<i>San Diego, Cal.</i>	X Ψ	Lodge
<i>en</i>	Alfred Cadwell MacBurney.....	<i>Middletown</i>	B Θ II	House
<i>cl</i>	MacLaury.	<i>Schenectady</i>	8	Van Vranken Av.
<i>en</i>	Edward Joseph Madden.....	<i>Schenectady</i>	16	Haigh Av.
<i>en</i>	Harry Clifton Mahood.....	<i>Newburgh</i>		North Colonnade
<i>en</i>	Ormond Hasbrook Mann.....	<i>Rensselaer</i>	1007	Nott St.
<i>ch</i>	Adam Marcimak	<i>Schenectady</i>	7	S. University Pl.
<i>sc</i>	Ivan Edward Marshall.....	<i>Buffalo</i>	Φ Γ Δ	House
<i>en</i>	Stuart Crandall Mason.....	<i>Glens Falls</i>	Δ Φ	House
<i>en</i>	Ward William Mason.....	<i>Sangerfield</i>	111	Nott Ter.
<i>en</i>	William James McCaig.....	<i>Buffalo</i>	N. S. N. C.	
<i>en</i>	Ross McClenahan	<i>Reedsville, Pa.</i>	38	Moyston St.
<i>en</i>	Edward Joseph McDonald.....	<i>Albany</i>	1	Swan St., Albany
<i>sc</i>	John Harold McGauley.....	<i>Schenectady</i>	812	Hamilton St.
<i>sc</i>	Kenneth McIntyre	<i>Watervliet</i>	243	Parkwood Blvd.
<i>en</i>	James Donald McKenzie.....	<i>Buffalo</i>	B Θ II	House
<i>en</i>	Thomas James McManus.....	<i>New Haven, Ct.</i>	101	Wendell Av.
<i>en</i>	Charles Messmer	<i>Schenectady</i>	119	Front St.
<i>en</i>	Ernest Philip Meyer.....	<i>Tuxedo Park</i>	Φ Δ Θ	House
<i>en</i>	Richmond Frederic Meyer.....	<i>Tuxedo Park</i>	Φ Δ Θ	House
<i>en</i>	La France Adelbert Mitchell....	<i>Schenectady</i>	Σ Φ	Place

<i>en</i>	Henry Mohler	<i>Poughkeepsie</i>	Z B T House
<i>sc</i>	Joseph Paul Molinare.....	<i>Oneonta</i>	33 Jefferson St.
<i>sc</i>	Fred Albert Moore.....	<i>Kansas City, Mo.</i>	Φ Γ Δ House
<i>cl</i>	Frank Jerome Morre.....	<i>Brooklyn</i>	Ψ τ House
<i>sc</i>	Geoffrey Arthur Mott-Smith...	<i>Schenectady</i>	1 Bedford Rd.
<i>ch</i>	Harold Miller Murphy.....	<i>Elmira</i>	Δ τ House
<i>sc</i>	Joseph Murphy	<i>Cohoes</i>	829 Union St.
<i>en</i>	Edward Meyer, Jr.....	<i>Claverack</i>	125 Park Pl.
<i>sc</i>	Edmund Naylor	<i>Schenectady</i>	25 Washington Av.
<i>pm</i>	Ralph Francis Nevin.....	<i>Schenectady</i>	602 Union St.
<i>ch</i>	George Nichols, Jr.....	<i>Buffalo</i>	North Colonnade
<i>sc</i>	Earl Walter Nicklas.....	<i>Schenectady</i>	19 Parkwood Blvd.
<i>en</i>	Ralph Anthony Nicklaw.....	<i>Schenectady</i>	808 Emmett St.
<i>sc</i>	Alfred Morning Niese.....	<i>Jersey City, N. J.</i>	A Δ Φ House
<i>en</i>	James Lewis Noecker.....	<i>Renovo, Pa.</i>	Φ Γ Δ House
<i>en</i>	Richard Randolph Oram.....	<i>Tuxedo Park</i>	Φ Δ Θ House
<i>cl</i>	William Chalmers Ostram.....	<i>Schenectady</i>	4 Rugby Rd.
<i>pm</i>	Kenneth Newton Palmer.....	<i>North Troy</i>	Φ Γ Δ House
<i>sc</i>	Louis Head Palmer.....	<i>Highland</i>	Φ Δ Θ House
<i>sc</i>	Roger Williams Patterson.....	<i>Denver, Col.</i>	A Δ Φ House
<i>pm</i>	Walter Pennington	<i>Schenectady</i>	R. F. D. No. 5
<i>pm</i>	Leal Luther Perry.....	<i>Rushville</i>	416 Lenox Rd.
<i>en</i>	Kirkwood Personius	<i>Elmira</i>	S. S. N. C.
<i>ch</i>	Joseph John Piekny.....	<i>Schenectady</i>	109 Eighth Av.
<i>sc</i>	Edward Thomas Pittock.....	<i>Swathmore, Pa.</i>	Φ Γ Δ House
<i>sc</i>	Harold Becker Platner.....	<i>Stamford</i>	S. S. N. C.
<i>en</i>	Russell Clarence Priess.....	<i>Canajoharie</i>	523 Brandywine Av.
<i>pm</i>	Alfred Thomas Purificato.....	<i>Cohoes</i>	45 White St., Cohoes
<i>en</i>	Franks Quackenbush	<i>Herkimer</i>	Δ Φ House
<i>ch</i>	George David Read.....	<i>Bath</i>	S. S. S. C.
<i>sc</i>	Henry Veeder Rector.....	<i>Hoffmans</i>	Hoffmans
<i>cl</i>	Frank Andrew Reed.....	<i>Schenectady</i>	132 Lafayette St.
<i>sc</i>	Frederic Abram Reynolds.....	<i>Schenectady</i>	524 Lenox Rd.
<i>pm</i>	Harry Reynolds	<i>Garfield</i>	14 Columbia St.
<i>sc</i>	Ralph Nattrass Reynolds.....	<i>Albany</i>	X Ψ Lodge
<i>sc</i>	Raymond Garret Rice.....	<i>Schenectady</i>	408 McClellan St.
<i>sc</i>	Claude Clifford Rich.....	<i>West Point, Neb.</i>	9 Eagle St.
<i>en</i>	Harold Chase Richter.....	<i>Fonda</i>	Pyramid Club

<i>pm</i>	Frederick William Ritz.....	<i>Sag Harbor</i>	Δ X Φ House
<i>en</i>	Leon Madison Rivers.....	<i>Gainesville, Fla.</i>	115 Palmer Av.
<i>sc</i>	Wallace Noble Robinson, Jr....	<i>Kansas City, Mo.</i>	Ψ Υ House
<i>en</i>	Winthrop Potter Robinson.....	<i>Albany</i>	183 Nott Ter.
<i>en</i>	Paulo Rocha	<i>Rio de Janeiro, Brazil.</i>	Δ X A Ho'se
<i>en</i>	Paul Sanford Ross.....	<i>Binghamton</i>	305 Seward Pl.
<i>ch</i>	Harold Niles Rowe.....	<i>Schenectady</i>	9 Park Pl.
<i>ch</i>	Ralph Horton Rue.....	<i>Schenectady</i>	1009 Union St.
<i>cl</i>	Philip Augustine Ryan.....	<i>Port Chester</i>	701 Brandyw'e Av.
<i>sc</i>	Herbert Allen Sanderspree....	<i>Fort Edward</i>	N. S. N. C.
<i>en</i>	William Ashley Sanderspree...	<i>Fort Edward</i>	N. S. N. C.
<i>pm</i>	Harold Sarver	<i>Glens Falls</i>	K A Lodge
<i>en</i>	Karl Clifford Saunders.....	<i>Seneca Falls</i>	1003 Nott St.
<i>sc</i>	James Teller Schoolcraft, Jr...	<i>Schenectady</i>	1370 Union St.
<i>en</i>	William Schwartz	<i>Poughkeepsie</i>	Z B T House
<i>sc</i>	John Ainsworth Scott.....	<i>Albany</i>	X Ψ Lodge
<i>en</i>	Harold Ankers Sheldon.....	<i>Poughkeepsie</i>	N. S. N. C.
<i>en</i>	John Banks Sherwood.....	<i>Southport, Conn.</i>	M. S. S. C.
<i>en</i>	Henry Silverstein	<i>Albany</i>	756 Broadway, Albany
<i>en</i>	Harvey Dann Simmons.....	<i>Delhi</i>	11 Parkwood Blvd.
<i>en</i>	Harold George Simmons.....	<i>Akron, O.</i>	Φ Γ Δ House
<i>en</i>	Donald Elmer Slack.....	<i>Albany</i>	11 Providence Pl., Alb'y
<i>cl</i>	Kenneth Smead	<i>Luzerne</i>	Old Gym Dormitory
<i>en</i>	James Joseph Smimmo.....	<i>Gloversville</i>	N. S. N. C.
<i>en</i>	Charles William Smith.....	<i>Spencerport</i>	K A Lodge
<i>en</i>	George Henry Smith.....	<i>Schenectady</i>	922 Delamont Av.
<i>pm</i>	James Edison Smith.....	<i>Schenectady</i> ..	412 Schenectady St.
<i>pm</i>	Lawrence Richard Smith.....	<i>Richfield Springs</i> ...	Terrace Club
<i>sc</i>	Robert James Smith.....	<i>Schenectady</i>	1307 Union St.
<i>pm</i>	Edward William Sommers....	<i>Schenectady</i>	121 Elm St.
<i>cl</i>	Malcolm Davry Springer.....	<i>Troy</i>	401 Tenth St., Troy
<i>en</i>	Courtland Steelman	<i>Wildwood, N. J.</i>	Δ X A House
<i>en</i>	Walter Roland Stock.....	<i>Anniston, Ala.</i>	R. F. D. No. 1
<i>pm</i>	Mitchell Smith Talmas.....	<i>Schenectady</i>	1024 Stanford St.
<i>en</i>	Van Keuren Wade Tasker.....	<i>Schenectady</i>	214 Union St.
<i>en</i>	Carroll Fletcher Terwilliger...	<i>Schenectady</i> ..	312 Parkwood Blvd.
<i>en</i>	Walter Phillip Thebo.....	<i>Fort Edward</i>	Δ Φ House
<i>ch</i>	Raymond Henry Thielking....	<i>Amsterdam</i> ..	53 Arnold Av., Am'm

<i>en</i>	Robert Quigley Thomas.....	<i>Corning</i>	B Θ II House
<i>en</i>	Theodore Richard Townley....	<i>Schenectady</i>	301 Victory Av.
<i>en</i>	Charles Richards Towson, Jr....	<i>White Plains</i>	223 Seward Pl.
<i>ch</i>	Adrian Chester Tracy.....	<i>Rotterdam Jct</i>	Rotterdam Jct.
<i>en</i>	Dimitri Trone	<i>Schenectady</i> ..	204 Glenwood Blvd.
<i>en</i>	James Henry Turnbull.....	<i>Schenectady</i>	1 Parkwood Blvd.
<i>pm</i>	Charles Franklin Van Allen....	<i>Schenectady</i>	47 Glenwood Blvd.
<i>pm</i>	George Claus Von Borstel.....	<i>Wappinger Falls</i>	320 Avenue B
<i>ch</i>	George Otto Vosburgh.....	<i>Palatine Bdge.</i>	523 Brandyw'e Av.
<i>sc</i>	George Louis Wahl.....	<i>Chicago, Ill</i>	Φ Γ Δ House
<i>en</i>	Samuel Charles Wait.....	<i>Minerville</i>	227 Liberty St.
<i>en</i>	Gaylord Bacon Wakeman.....	<i>Wells Bridge</i>	No. Colonnade
<i>en</i>	Edward Benedict Wallace.....	<i>Schenectady</i>	353 McClellan St.
<i>pm</i>	Bronislaw Wandel	<i>Schenectady</i>	31 No. College St.
<i>ch</i>	Alonzo Taylor Waterhouse....	<i>Albany</i> ..	263 Western Av., Albany
<i>en</i>	Harold Frederick Watson.....	<i>Evans Mills</i>	413 McClellan St.
<i>ch</i>	John Storer Welling.....	<i>Hudson Falls</i>	842 Union St.
<i>ch</i>	George Henry Whipps.....	<i>Auburn</i>	S. S. N. C.
<i>sc</i>	Herbert Willits	<i>Troy</i>	Λ X A House
<i>pm</i>	Walter Blackburn Wilson.....	<i>Schenectady</i>	514 Rugby Rd.
<i>ch</i>	Fay Howard Wolford.....	<i>Newark</i>	B Θ II House
<i>sc</i>	Irving Howard Young.....	<i>Warrensburgh</i>	11 Barrett St

Freshmen — 257.

Students in Evening Courses

Miss G. Austin.....	<i>English</i>	302 Union St.
L. C. Bush.....	"	312½ Summit Ave.
Miss H. McQuade.....	"	148 Elmer Ave.
Miss J. Mocuski.....	"	873 Strong St.
H. Schaffer	"	203 McClellan St.
H. E. Schell.....	"	49 Twelfth St.
F. W. Silberkraus.....	"	203 McClellan St.
L. A. Unanski.....	"	36 Rugby Rd.

English — 8

E. M. Bill.....	<i>Elementary French</i>	52 Vley Rd., Scotia
Mrs. E. M. Bill.....	"	52 Vley Rd., Scotia
S. Faber	"	137 So. Ferry St.

Miss A. Fortin.....	<i>Elementary French</i>	70 Union Ave.
W. A. Guess.....	" "	514 Union St.
G. E. Junggren.....	" "	7 Lowell Rd.
C. Lawyer	" "	819 Lincoln Ave.
Miss L. F. Wilson...	" "	7 Avon Rd.
W. J. Wanmer.....	" "	R. R. 4
W. D. Yates.....	" "	119 Parkwood Blvd.

Elementary French — 10

Mrs. M. I. Barclay..	<i>Intermediate French</i>	4 Elmer Ave.
R. E. Campbell.....	" "	515 Union St.
Miss F. B. Cook....	" "	28 Union Ave.
Miss H. T. Densham.	" "	526 Campbell Ave.
Mrs. C. F. Garis....	" "	226 Parkwood Blvd.
Mrs. G. B. A. Jagger.	" "	1411 Eastern P'k'w'y
Mrs. Geo. W. Jones..	" "	Troy Rd.
Mrs. L. Krueger....	" "	44 Bedford Rd.
F. Ohashi	" "	111 Ardsley Rd.
Miss H. Ordord....	" "	16 S. University Pl.
Miss E. F. Peck....	" "	19 University Pl.
Mrs. M. P. Philip..	" "	27 Washington Ave.
T. Palmer	" "	Alpha Delta Phi, U. C.
Mrs. C. A. Richmond.	" "	Union College
N. L. Rea.....	" "	12 Parkwood Blvd.
Mrs. L. W. Smith..	" "	105 Waverly Pl.
Miss F. Strong.....	" "	12 Union St.
L. M. Strong.....	" "	12 Union St.
J. J. Thalheimer....	" "	418 Schenectady St.
J. C. Van Voast....	" "	1341 Union St.

Intermediate French — 20

S. P. Allis.....	<i>Spanish</i>	Ballston Lake
A. Birch	"	19 University Pl.
Miss K. B. Blodgett.....	"	12 No. Church St.
W. T. Burdick.....	"	602 Campbell Ave.
G. E. Cassidy.....	"	159 Furman St.
Miss E. B. Clark.....	"	327 Avenue A
L. L. Everson.....	"	3 No. Wendell Ave.
S. Faber	"	137 So. Ferry St.

E. C. Givens.....	<i>Spanish</i>	18 Chestnut St.
Miss E. A. Gutterson.....	"	909 McClyman St.
C. E. Kraehm.....	"	602 Campbell Ave.
L. L. Lindstrom.....	"	Ballston Lake
R. M. Murphy.....	"	351 Summit Ave.
M. C. Pope, Jr.....	"	17 Eagle St.
M. C. Talentino.....	"	34 No. Ferry St.
H. R. Tallmadge.....	"	Stop 4, Albany Rd.
Miss H. R. Torrens.....	"	725 Eastern Ave.

Spanish — 17

W. J. Anderson.....	<i>Public Speaking</i>	53 Third Ave.
H. Frumkin	"	422 Hamilton St.
H. R. Beyerl.....	"	1022 Eastern Ave.
A. W. Gillespie.....	"	11 Grove Pl.
S. F. Green.....	"	318 Summit Ave.
H. J. Kleinman.....	"	423 State St.
C. S. Knight.....	"	109 Brandywine Ave.
I. Mannesovitch	"	1311 Union St.
L. C. Mosley.....	"	111 Wendell Ave.
R. L. Sauter.....	"	956 State St.
E. C. Schultz.....	"	7 Teunis St., Albany
E. L. Shannon.....	"	307 State St.
E. E. Spencer.....	"	25 Dean St.
A. Suksdorf	"	605 Union St.
H. A. Tieman.....	"	211 Becker St.
M. C. Veremis.....	"	231 Seward Pl.
B. C. Waite, Jr.....	"	12 No. Wendell Ave.
W. R. Whitney.....	"	Stop 16, Troy Rd.

Public Speaking — 18

E. F. Auer.....	<i>Psychology</i>	22 Close St.
Miss J. V. Bassett....	"	101 Edward St.
J. E. Burke.....	"	180 Nott Ter.
J. E. Burmester.....	"	133 Front St.
L. E. Coates, M. D....	"	1130 State St.
W. Dalton	"	R. F. D. 2
H. W. Dennington....	"	6 Gillespie St.

L. L. Everson.....	<i>Psychology</i>	3 No. Wendell Ave.
S. Faber	"	137 So. Ferry St.
Mrs. J. D. Fodder....	"	5 Jay St.
Miss H. Golub.....	"	615 Lenox Rd.
W. A. Hepon.....	"	345 Schenectady St.
Miss E. M. Lund.....	"	Marriott Ave.
M. Romance	"	14 Haigh Ave.
Mrs. W. H. Rowney..	"	47 Ballston Rd.
W. H. Rowney.....	"	47 Ballston Rd.
Miss M. A. Sherer....	"	214 Union St.
L. B. Spear.....	"	Grand Blvd. & Keep Ave.
R. D. Teele.....	"	301 Germania Ave.
E. C. Vrooman.....	"	P. O. Box 697
E. Weber	"	16 Lexington Ave.

Psychology — 21

W. E. Arthur.....	<i>Economics</i>	3 Ontario St.
E. F. Auer.....	"	22 Close St.
G. L. Bolster.....	"	10½ Gillespie St.
J. E. Burmester.....	"	133 Front St.
A. Castell	"	20 So. Church St.
Miss L. E. Coates, M.D.	"	1130 State St.
W. Dalton	"	Hardings Crossing
L. L. Everson.....	"	3 No. Wendell Ave.
H. Frumkin	"	422 Hamilton St.
S. F. Green.....	"	318 Summit Ave.
H. J. Keliman.....	"	137 So. Center St.
R. A. MacAlister.....	"	15 Harrison Ave.
F. B. Moncton.....	"	Niskayuna, N. Y.
C. F. Mooney.....	"	506 Crane St.
F. Ohashi	"	111 Ardsley Rd.
R. B. Prindle.....	"	1007 Nott St.
Miss F. C. Richmond..	"	Union College
M. Romano	"	14 Haigh Ave.
R. A. Rowlands.....	"	36 Spruce St.
R. Treat	"	13 Glenwood Blvd.
H. C. VerWiebe.....	"	730 State St.

Economics — 21

Miss M. E. Clark.....	<i>Geology</i>	704 Union St.
L. Huthsteiner	"	102 Park Ave.
E. C. Knowlton.....	"	145 Furman St.
Miss A. L. Marsh.....	"	508 State St.
Miss E. K. Macmillan....	"	209 Seward Pl.
G. R. McDonald.....	"	159 Barrett St.
Miss Yvonne Monod.....	"	Union College
Miss M. E. Ryan.....	"	862 Union St.

Geology — 8

C. P. V. Christensen..	<i>Elem. Chemistry</i>	530 Chrisler Ave.
F. Conway	"	121 Fourth Ave.
W. Dalton	"	R. F. D. 2
W. L. Hand.....	"	35 Turner Ave.
Miss M. J. Levey.....	"	Van Antwerp Rd.
G. J. MacDonald.....	"	137 Division St.
T. J. O'Mallery.....	"	527 Schenectady St.
J. J. O'Connor.....	"	430 Crane St.
R. B. Prindle.....	"	1007 Nott St.
Mrs. A. C. Risley.....	"	222 Glenwood Blvd.
C. E. Slater.....	"	42 Robinson St.
H. E. Tanis, Jr.....	"	771 Eastern Ave.

Elementary Chemistry — 12

W. A. Atwood.....	<i>Org. Chemistry</i>	321 Glenwood Blvd.
L. C. Bush.....	"	312½ Summit Ave.
C. F. Cook.....	"	514 Union St.
F. T. Cox.....	"	125 Barrett St.
F. J. Heenan.....	"	148 President St., Troy
H. J. J. Huber.....	"	R. F. D. 1
S. Inaba	"	R. F. D. 1
A. Heller	"	506 Paige St.
A. Kidner	"	121 Barrett St.
V. Quackenbush	"	33 Forest Rd.
C. J. Ralph.....	"	2 Mynders St.
J. R. Schierbaum.....	"	125 Prospect St.
W. W. Schilling.....	"	52 Furman St.
Miss M. K. Slattery...	"	48 2nd St., Amsterdam

E. C. Vrooman.....	<i>Org. Chemistry</i>	207 Union St.
W. Wedeman	“ “	26 James St.

Organic Chemistry — 16

S. P. Dembski.....	<i>Physics</i>	18 Manhattan St.
J. Griffin	“	315 Hulett St.
E. Hay	“	618 Chapel St.
J. F. Humphreys.....	“	411 Congress St.
W. F. Macholz.....	“	238 McClellan St.
A. Umlauf	“	4 Holland Rd.
W. F. Winter.....	“	12 Baker Ave.

Physics — 7

E. T. Coon.....	<i>Applied Mechanics</i>	19 Willow Ave.
H. Barth	“ “	102 First Ave.
P. C. Bevins.....	“ “	5½ Westinghouse Pl.
H. B. Cleary.....	“ “	802 Grant Ave.
L. Duran	“ “	509 Craig St.
C. B. Degenaar.....	“ “	228 McClellan St.
W. M. Eades.....	“ “	14 Fuller St.
E. J. Fenzl.....	“ “	130 Prospect St.
F. A. Hart.....	“ “	3 Willett St.
H. G. Hartman.....	“ “	R. F. D. 1
F. R. McConvery...	“ “	526 Summit Ave.
A. J. McGovern....	“ “	215 Seward Pl.
W. Mocarski	“ “	873 Strong St.
T. H. Moynkhan....	“ “	408 Victory Ave.
H. W. Mueller.....	“ “	213 Fifth Ave.
D. H. Patton.....	“ “	69 Frost St., Albany
J. Peluso	“ “	517 Weaver St.
A. J. Picard.....	“ “	282 Central Ave., Albany
J. Sebis	“ “	1003 Nott St.
F. D. Slater.....	“ “	172 Nott Ter.
J. E. Springer....	“ “	301 Rosa Rd.
G. O. Truex.....	“ “	229 Eighth Ave.
A. Umlauf	“ “	4 Holland Rd.
M. J. Valachovic...	“ “	802 Webster St.
W. M. Watts.....	“ “	1381 Union St.
W. A. Wilkins.....	“ “	50 Furman St.

Applied Mechanics — 26

T. H. Ainsworth.....	<i>Fund. E. E.</i>	119 Mason St.
A. V. Bigwood.....	".....	303 Riverside Ave.
C. Cope.....	".....	20 Slater St., Amsterdam
G. P. Clute.....	".....	1145 Eastern Ave.
S. P. Dembski.....	".....	18 Manhattan St.
H. F. Devery.....	".....	134 Furman St.
W. H. Elmendorf.....	".....	31 Third St.
J. B. Fink.....	".....	14½ Albany Rd.
E. W. Griffith.....	".....	614 Terrace Pl.
F. Heil.....	".....	122 James St., Scotia
L. B. Herron.....	".....	417 Brandywine Ave.
A. P. Hodgman.....	".....	18 Park Pl.
J. A. Horne.....	".....	1 Jackson Pl.
E. Huber.....	".....	112 Odell St.
J. F. Humphrey.....	".....	411 Congress St.
L. Huthsteiner.....	".....	102 Park Ave.
E. L. Johnson.....	".....	3 Shannon St.
C. W. Kenyon.....	".....	778 State St.
D. W. MacCready.....	".....	34 Robinson St.
J. H. Mohler.....	".....	23 Jay St.
J. McKinistry.....	".....	892 Emmet St.
W. Picard.....	".....	282 Central Ave.
R. B. Prindle.....	".....	1007 Nott St.
J. Redgate.....	".....	924 Duane Ave.
F. J. Renner.....	".....	Stop 4½, Albany Rd.
H. Reyes.....	".....	241 Liberty St.
W. Russell.....	".....	R. F. D., Watervliet
A. C. Schlansker.....	".....	50 Willett St.
J. C. Siegrist.....	".....	1 Van Antwerp Rd.
R. F. Smith.....	".....	136 Park Ave.
E. J. Walsh.....	".....	2 Alden Pl.
W. H. Walsh.....	".....	105 Parkwood Blvd.
W. J. White.....	".....	116 Odell St.
W. A. Wilkins.....	".....	50 Furman St.

Fundamentals of Electrical Engineering — 34

G. L. Bolster.....	<i>Calculus</i>	10½ Gillespie St.
Miss D. Evans.....	".....	314 Summit Ave.

Miss H. Golub.....	<i>Calculus</i>	615	Lenox Rd.
W. D. Kellogg.....	"	104	Jay St.
C. F. Kennedy.....	"	28	Osterlitz Ave.
E. C. Knowlton.....	"	145	Furman St.
G. H. Neve.....	"	31	Haigh Ave.
F. J. Pechal.....	"	R. F. D. 6	
R. B. Prindle.....	"	1007	Nott St.
Miss F. M. Robinson....	"	153	Lafayette St.
D. T. Simonds.....	"	107	Union St.
Miss M. K. Slattery.....	"	48	Second St., Amsterdam

Calculus — 12

Mrs. M. R. Andrews..	<i>Differ. Equations</i> ..	110	Catherine St., Scotia
R. O. Alden.....	"	59	Vley Rd., Scotia
A. C. Connell.....	"	213	Broadway
C. C. Dodge.....	"	137	Park Ave.
R. H. Kienle.....	"	1241	State St.
W. E. Shapiro.....	"		Union College
C. E. Tullar.....	"	9	McClellan St.
F. G. Vogdes.....	"	205	Seward Pl.

Differential Equations — 8

W. L. S. Alexander...	<i>Elec. Engrg</i>	308	Summit Ave.
Ed. Austin	"	7	Oneida St.
F. C. Bigley.....	"	15	Lincoln Ave., Albany
M. Brunet	"	7	Park Pl.
I. F. Byrnes.....	"	812	State St.
L. J. Cavanaugh.....	"	608	Becker St.
E. S. Carter.....	"	712	Union St.
G. G. Carter, Jr.....	"	21	Snowden Ave.
E. Cooke	"	7	Swan St.
W. N. Eddy.....	"	41	Elm St.
C. F. Fischer.....	"	149	Nott Ter.
Luis H. Gaitan.....	"	126	Wall St.
G. R. Galletly.....	"	791	State St.
F. Garrison	"	31	No. Wendell Ave.
H. D. Godfrey.....	"	40	Glenwood Blvd.

E. L. Gutterson.....	<i>Elec. Engrg.</i>	909	McClyman St.
H. W. Hartman.....	" "	42	Euclid Ave.
H. L. Heart.....	" "	708	Huron St.
P. W. Heath.....	" "	313	Lexon Rd.
C. M. Herrick.....	" "	137	Park Ave.
F. Hietala	" "	122	James St., Scotia
C. G. Holt.....	" "	211	Seward Pl.
C. A. Horning.....	" "	913	Stanley St.
E. H. Horstkotte.....	" "	10½	Gillespie St.
L. J. Hurley.....	" "	812	State St.
W. O. Kellogg.....	" "	104	Jay St.
A. Kluger	" "	33	Front St.
R. J. Latorre.....	" "	26	Nott Ter.
J. J. Laut.....	" "	67	Elm St., Albany
M. M. Levitt.....	" "	104	Jay St.
E. W. Litchfield.....	" "	14	James St.
E. C. Nelson.....	" "	159	Barrett St.
J. C. Painter.....	" "	605	Union St.
E. H. Pim.....	" "	159	Barrett St.
E. W. Powell.....	" "	1233	Campbell Ave.
A. K. Reid.....	" "	30	Wendell Ave.
F. W. Reilly.....	" "	7	Park Pl.
W. R. Ross.....	" "	104	Jay St.
A. A. Rourke.....	" "	419	Union St.
G. W. Schermerhorn..	" "		R. F. D. 1, W. Albany
W. E. Shapiro.....	" "		Union College
M. C. Talentino.....	" "	34	No. Ferry St.
L. E. Van Allen.....	" "	968	Emmet St.
R. H. Vaughan.....	" "	131	Front St.
G. V. Watts.....	" "	1381	Union St.
F. Werner	" "	309	Paige St.
E. A. Wolcott.....	" "	789	State St.
W. M. Woodworth...	" "	812	State St.

Electrical Engineering — 48

F. J. Bostley.....	<i>Machine Design</i>	48	Cedar St.
G. H. Feather....	" "	10	Cedar St.

H. E. Feather....	<i>Machine Design</i>	1322 State St.
N. Geertsens .....	" "	.....68 Sacandaga Rd., Scotia
W. J. Griffin.....	" "	.....
W. L. Healy.....	" "	.....130 Clinton St.
F. Hurka .....	" "	.....602 Union St.
A. C. Kelley.....	" "	.....207 Division St.
T. Kerr .....	" "	..... Ravine Rd.
R. H. Kienle.....	" "	.....1241 State St.
R. Koch .....	" "	.....126 Woodland Ave.
B. F. Koprowski..	" "	.....549 Summit Ave.
H. A. Lundberg..	" "	.....835 Stanley St.
F. Murphy .....	" "	.....511 Fifth Ave., No. Troy
H. B. Payne.....	" "	.....44 Parkwood Blvd.
C. R. Phiffer.....	" "	.....1189 Eastern Ave.
A. G. Reynolds...	" "	.....Stop 8, Albany Rd.
A. M. Reynolds...	" "	.....3 Willow Ave.
J. A. Sertl.....	" "	.....6 Close St.
R. Siska .....	" "	.....152 Tenth Ave.
O. M. Smith.....	" "	.....829 Pleasant St.
E. J. Thomas.....	" "	.....24 George St., Cohoes
W. M. Travis.....	" "	.....Rexford, N. Y.
T. P. Waterhouse.	" "	.....8 Cherry St.
F. J. White.....	" "	.....116 Odell St.

Machine Design — 25

A. Bentley, Jr....	<i>Locomo. Design</i>	946 Crane St.
E. W. Calor.....	" "	.....1419 State St.
R. E. Overbaugh..	" "	.....28 Springfield Ave.
J. T. Quinn.....	" "	.....1482 State St.
W. B. Reid.....	" "	.....117 Avenue B
S. J. Rentz.....	" "	.....119 No. Ferry St.
R. L. Sauter.....	" "	.....956 State St.
C. LeR. Underhill.	" "	.....791 State St.
A. J. Van Alstyne.	" "	.....139 Division St.
W. M. Watts.....	" "	.....1381 Union St.
C. R. Tighe.....	" "	..2152 3d Ave., W'vliet, N. Y.

Locomotive Design — 11

E. R. Attenhofer....	<i>Steam Power</i>	68 Vischer Ave.
F. T. Cox.....	“ “	125 Barrett St.
C. Cope	“ “	20 Slater St., Amsterdam
J. B. Fink.....	“ “	14½ Albany Rd.
W. W. Friday.....	“ “	25 Parkwood Blvd.
A. W. Gillespie.....	“ “	11 Grove Pl.
F. A. Hart.....	“ “	3 Willett St.
F. Hurka	“ “	602 Union St.
J. E. Milbank.....	“ “	525 Brandywine Ave.
O. J. Mitchell.....	“ “	123 Elm St.
E. H. Pim.....	“ “	159 Barrett St.
C. S. Rice.....	“ “	129 Park Ave.
W. Ross	“ “	104 Jay St.

Steam Power — 13

T. S. Bailey.....	<i>Reinf. Concrete</i>	849 Union St.
F. D. Barclay.....	“ “	4 Elmer Ave.
H. B. Compton...	“ “	207 Lincoln St., Scotia
W. J. Erickson...	“ “	7 Columbia St., Albany
W. W. Friday....	“ “	25 Parkwood Blvd.
M. S. Gardner....	“ “	24 Elbert St.
J. H. Johnson, Jr.	“ “	22 Cedar St.
A. E. Lofquist....	“ “	12 Columbia St.
G. E. Miller.....	“ “	24 Euclid Ave.
C. H. Parsons....	“ “	32 Alvey St.
J. M. Ryder.....	“ “	16 Swan St.
R. C. Simmonds..	“ “	Stop 20, West Albany
P. F. Swasey.....	“ “	35 No. Wendell Ave.
H. R. Tallmadge..	“ “	Stop 4, Albany Rd.
G. L. Van Auken..	“ “	16 James St.
F. N. Van Zile....	“ “	7 Grosvenor Sq.
F. A. Vernon.....	“ “	838 Crane St.
S. K. Wiley.....	“ “	35 No. Wendell Ave.

Reinforced Concrete — 18

Extension Course Students — 353, including 11 duplicates

Summary of Students, Union College

Candidates for Master's Degree (in absentia).....	2
Graduate Students (in residence).....	44
Seniors.	87
Juniors.	92
Sophomores.	178
Freshmen.	257
	<hr/>
	660
Extension Course Students.....	342
	<hr/>
Total.....	1002
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STUDENTS OF THE ALBANY MEDICAL COLLEGE

Fourth Year Class

Douglas Anderson Calhoun.....	Watervliet
Bernard Roger Coleman.....	Green Island
Joseph Cornell	Scotia
Lawrence James Dailey.....	Gloversville
Percy Lawrence DeNoyelles.....	Jersey City, N. J.
Alfred Herman Duerschner.....	Troy
*George Otis Gilman.....	Ballston Spa
William Lawrence Gould.....	Albany
Lawrence Daniel Greene.....	Petersburg
Albert Leonard Hayes.....	Hoosick Falls
Leland Earl Hinsie.....	Schenectady
John Albert Kelk.....	Cairo
Fred Burton MacNaughton.....	Troy
Harold Edwin Marden, A. B.....	Troy
Thomas Sylvester Mooney.....	Cohoes
Thomas William Phelan.....	Troy
Walter Fred Preusser.....	Albany
William George Richtmyer.....	Albany
Anton Schwarz Schneider.....	Albany
Homer L. Stephens.....	Gardiner
Reginald Van Woert.....	Athens
Asher Yaguda	Albany

Fourth Year Class — 22

Third Year Class

Charles Ethan Allen.....	Orleans, Ind.
L. Prescott Brown.....	Mt. Kisco
Arthur Francis Cody.....	Schenectady
Edward Joseph Fitzgerald.....	Glens Falls
Donald Briggs Glezen.....	Lisle
Harold Jerome Harris.....	Albany
Lynden Andrew Hulbert.....	Middleburg
William John Jameson.....	Schenectady

* Deceased.

Edwin Charles Johnson.....	Schenectady
Joseph Paul Lasko.....	Schenectady
Maver Miller Lee.....	Schenectady
John Joseph Quinlan.....	Watervliet
Lyle Adin Sutton.....	Prattsville
Arthur Charles Swartz.....	Albany
William McCheyne Thomson.....	Delhi
Charles Edward Wiedenman, Jr.....	Schenectady
Arthur Raymond Wilsey.....	Greenfield Center

Third Year Class — 17

Second Year Class

Garvie Adelson.....	Pittsfield, Mass.
Frank Henry Baehr.....	Wallingford, Conn.
Harold Roberts Browne.....	Cobleskill
Harold William Dargeon.....	New York City
Alvah Robert Davignon.....	Corinth
Americo Filippone.....	Newark, N. J.
William Mitchell Mallia.....	Schenectady
Jere John McEvilly.....	Johnstown
Ferdinando Louis Perrone.....	Sheepshead Bay, N. Y.
Raphael A. Riedkozeb.....	New York City
Charles Fayette Rourke.....	Holyoke, Mass.
Harold Daniel Sehl.....	Albany
George Oliver Tremble.....	Saranac Lake
Beverly Leland Vosburgh.....	Schenectady
Adolph Weinstein.....	New York City
John Charles Younie.....	Schenectady

Second Year Class — 16

First Year Class

Clarence Ferdinand Ackerknecht.....	Johnstown
Ernest Benjamin Bell.....	Albany
Lucy Elizabeth Bourn.....	Albany
John Francis Connor.....	Green Island
William Loren Coté.....	Warrensburgh
Anthony Devito	Brooklyn

John Quinn Donahue.....	Cohoes
Samuel Ebenfeld.....	Newark, N. J.
David Henry Faulknor.....	Amsterdam
Ruth Gilbert	Albany
Joseph Randolph Gingold.....	Albany
George Herbert Gonyea.....	Schenectady
Raymond Ignace Gosselin.....	Troy
Daniel Earl Kavanaugh.....	Cohoes
Thomas Robert McCool.....	Glens Falls
Douw Schuyler Meyers.....	Randall
Francis Mulcare	Schenectady
Nitya Pauvedya.....	Bangkok, Siam
Louis Simon Poskanzer.....	Albany
Jasper Lewis Robertson.....	Hoosick Falls
William Schwartz.....	Paterson, N. J.
Moses Simon.....	New York City
Li Sribyatta.....	Bangkok, Siam
Alfred Anthony Storey.....	Gloversville
Harold Field Teed.....	East Masonville
David Henry Vrooman.....	Randall
First Year Class — 26	

Summary of Students, Albany Medical College

Fourth Year Class.....	22
Third Year Class.....	17
Second Year Class.....	16
First Year Class.....	26
<hr/>	
Total.....	81
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STUDENTS OF THE ALBANY LAW SCHOOL

Third Year Class

Charles H. Andros.....	Albany
Leon Aronowitz	Albany
David G. Ashton.....	Cambridge
James Anderson	Caledonia
Frank J. Blanchard.....	Albany
Chester A. Blauvelt.....	Albany
Harold Beyerl	Schenectady
Harold V. Baker.....	Schoharie
Robert C. Barnett.....	Cornwall-on-Hudson
Joseph Besch, Jr.....	Albany
Charles Blank	Peekskill
Charles B. Brasser.....	Williamson
Edward J. Breslin.....	Scotia
Rocco R. Calli.....	Canastota
Kenneth Creble.....	Feura Bush
Raymond Lewis Carr.....	Albany
Maxwell Cheeger	Poughkeepsie
Robert L. Coates.....	New Britain, Conn.
William L. Cohn.....	Saratoga Springs
Jeremiah J. Connolly.....	Troy
Stanley T. Conway.....	Cohoes
Murray Curtin	Utica
Sidney Z. Davidson.....	Rochester
Mary G. Donahue.....	Cohoes
Leo J. Downs.....	Peru
Harry D. Eckler.....	Cooperstown
M. Paul Fox, Jr.....	New York
Harry J. Frey.....	Rochester
Alton L. Flanders.....	St. Johnsville
Raymond G. Fite.....	Albany
Benjamin Friedlander	Schenectady
Emmett A. Glynn.....	Gloversville
John F. Gallagher.....	Westerly, R. I.
Joseph C. Gallup.....	Albany
Frederick M. Garfield.....	Jamestown

Lazar Gellert	Poughkeepsie
Ruth Goldberg	Albany
Jacob M. Goldenkoff.....	Albany
Joseph Greenberg	Albany
John W. Guzzetta.....	Avon
Raymond Ham	Schenectady
Roscoe Harper	Lisbon
Emily C. Hass.....	Albany
William G. Healy.....	Troy
Frances Hershberg	Albany
Eugene J. Hummer.....	Ravena
Marion R. Hunter.....	Albany
Maurice D. Isenbergh.....	Troy
Maurice M. Katz.....	Schenectady
Harry P. Kehoe.....	Willsboro
Gertrude M. Keefe.....	Albany
John J. Kenny.....	Troy
Vincent Kiebalá	Buffalo
John Knox	Albany
Arthur E. Laudenslager.....	Jamestown
Robert S. Long.....	Plattsburgh
John Lurie	Schenectady
Kenneth S. MacAffer.....	Green Island
Clarence L. MacNeill.....	Cohoes
Quentin H. MacNeill.....	Cohoes
Edmund A. McCarthy.....	Little Falls
Walter D. McConnen.....	Utica
Marcus M. McCullough.....	Green Island
Charles F. McGovern.....	Albany
Edward W. McLaren.....	Troy
George A. Marcus.....	Schenectady
John D. Mattice.....	Slingerlands
Kelsie E. Nead.....	Schenectady
Rae Miller	Albany
Walter J. Miller.....	Kingston
Ruth M. Miner.....	Slingerlands
Eugene A. Molitor.....	Albany
Thomas F. Morris, Jr.....	Waterford

Perry W. Mosher.....	Woodstock
Walter G. Mullarney.....	Malone
Augustus C. Nelson.....	Jamestown
Gilbert A. Nusbaum.....	Rochester
Matthew S. Ogonowski.....	Schenectady
Douglas S. Rider.....	Albany
Russell G. Rogers.....	East Setauket
James M. Ryan.....	Port Byron
Louis Sahr	Schenectady
Richard J. Sherman.....	Saratoga Springs
Burtran A. Shumway.....	East Randolph
Dorothy S. Silberman.....	Albany
Andrew L. Smith.....	Bolton Landing
Walter Stankiewicz.....	Little Falls
Francis A. Sturges.....	Waterport
Louis P. Stutz.....	Albany
Isador Taub	Albany
Elizabeth Taylor	Plattsburgh
James A. Thompson.....	Johnstown
William V. L. Turnbull.....	Campbell
Morton T. Valley.....	Cohoes
Harry W. Walk.....	Green Island
David Wanger	Albany
Allan B. Weidman.....	Albany
Ralph R. Whitney.....	Liverpool

Third Year Class — 98

Second Year Class

Raymond F. Allen.....	Interlaken
Leo W. Breed.....	Baldwinsville
Florence G. Benson.....	Cohoes
Sylvester R. Benson.....	Cohoes
William Barto	Cohoes
Kathryn O. J. Butler.....	Schenectady
Frank L. Brandt.....	Cohoes
Edward M. Cameron, Jr.....	Albany
Leland F. Coss.....	Albany
Frank S. B. Davis.....	Cropseyville

James C. D'Aprile.....	Geneseo
Anthony DeStefano	Albany
James Durnin.....	Penn Yan
Samuel W. Eager.....	Montgomery
Maurice J. Fitzgerald.....	Albany
Frederick E. Fox.....	Rochester
Harry Frumkin	Schenectady
Donald H. Grant.....	Hobart
George W. Greene.....	Kingston
Samuel E. Goldstein.....	Albany
Percy Gellert	Poughkeepsie
Donald Gallagher	Albany
Clyde F. Gardner.....	Saugerties
Lester F. Gardner.....	Westport
Joseph E. Grosberg.....	Troy
Waldo M. Howard.....	Putney, Vt.
George W. Harder.....	Albany
Kenneth Holcombe.....	Rouses Point
Clayton L. Howland.....	Center Lisle
T. Stewart Hubbard.....	Troy
David Hutchison	Albany
Arthur W. Johnson.....	Ridgway, Pa.
Charles H. Kivlen.....	Albany
Bernard Katz	Albany
Jacob Kaslowsky.....	Port Chester
John E. Keenan.....	Rochester
Howard A. Kennedy.....	Troy
Marvin I. King.....	Schenectady
Ely S. Koplovitz.....	Troy
Chandler S. Knight.....	Schenectady
Sylvia R. Kovitz.....	Troy
Clifton H. Landon.....	Watertown
W. Glenn Larmouth.....	Sandy Creek
R. Edward LaCava.....	Danbury, Conn.
Thomas LaRosa	Albany
Walter W. Law, Jr.....	Albany
Dorothy F. Leonard.....	Poultney, Vt.
Ernest Liebman.....	New York

Basil E. Moore.....	Rochester
John L. Moore.....	Troy
Scott L. Osborne.....	Athens
Hannibal Pardi	Schenectady
Gregory G. Phillips.....	Clinton
Mathias P. Poersch.....	Schenectady
Fred J. Purdy.....	Albany
Gerald W. Perkins.....	Schenectady
Elmer M. Rossman.....	Clinton Corners
George B. Roberts.....	Winter Park, Fla.
John J. Scully.....	Rensselaer
Kenneth C. Steblen.....	Cape Vincent
Harry M. Schaffer.....	Schenectady
Hyman W. Sevis.....	Schenectady
Oscar Shapiro.....	Glens Falls
Joseph E. Stearns.....	Albany
I. R. Stein.....	Schenectady
Raymond Stocking	Bath
Ida Sacharoff	Schenectady
Isidore Satz	Poughkeepsie
W. W. Wemple, Jr.....	Schenectady
Walter H. Wertime, Jr.....	Cohoes
Harold W. Williams.....	Albany
James J. Wilson.....	Troy
Stephen W. Zeh.....	Central Bridge

Second Year Class — 73

First Year Class

Martin J. Barry.....	Troy
Alexander M. Baynes.....	Troy
John A. Behan.....	Troy
Joseph C. Behan, Jr.....	Troy
Edward W. Bock.....	Utica
Earl E. Bowe.....	Schenectady
Donald F. Boyle.....	Amsterdam
Francis T. Brennan.....	Schenectady
Charles A. Brind.....	Albany
Mark R. Brinthaup.....	Elmira

Anthony Bruzdinski	Schenectady
Leland B. Bryan.....	Bath
John V. Bucher.....	Albany
David W. Burke.....	Saratoga Springs
Douglas A. Calkins.....	Rensselaer
Truman D. Cameron.....	Albany
Daniel C. Campbell.....	Schenectady
Katharine F. Carroll.....	Cohoes
David Cohen	Rochester
Morris P. Cohen.....	Rochester
Burton W. Cohoon, Jr.....	Ilion
Merritt S. Collins.....	Troy
Thomas R. Connery.....	Cohoes
Jacob A. Comisky.....	Utica
F. Elden Coons.....	Newburgh
Percy W. Curry.....	Rochester
Donald D. Curtis.....	Cherry Creek
Andrew C. Davidson.....	Cooperstown
James J. Delaney.....	Watervliet
James W. Donnelly, Jr.....	Troy
J. Emmett Dowling.....	Albany
Thomas J. Dwyer.....	Amsterdam
Spencer B. Eddy.....	Saratoga Springs
Joseph L. Fitzgerald.....	Troy
Harold W. Founks.....	Troy
Charles W. Fuhrere.....	Roscoe
Alfred J. Glynn.....	Brooklyn
Nellie Gilchrist	Ilion
H. LeRoy Gill.....	Kingston
Harry L. Gilrie.....	Lockport
Edmund J. Glacken.....	Amsterdam
James H. Glavin, Jr.....	Waterford
Harold Gould	Schenectady
Alexander Grasso	Schenectady
Herman P. Greene.....	AuSable Forks
Jacob J. Guzzetta.....	Mt. Morris
Mary Houlihan	Waterford
Charles M. Hughes.....	Ilion

Abbott J. Jones.....	Troy
Earl S. Jones.....	Franklin
Arthur E. Kaley.....	Milton
Gilbert C. Kastensmith.....	Schenectady
Stephen H. Keating.....	Waterford
Jacob Krouner.....	East Schodack
LaVerne G. Lewis.....	Stamford
Frederick A. Loeffler.....	Albany
Frances M. Lang.....	Saratoga Springs
John A. LaBate.....	Danbury, Conn.
Roland E. LaGrange.....	Schenectady
Robert J. Laffin.....	Berlin, N. H.
Charles Lambiase	Rochester
J. Edward Leary.....	Bergen
Joseph Louwisch	Poughkeepsie
Harold W. McCann.....	Berlin, N. H.
Merton D. Meeker.....	Binghamton
Gregory F. Mills.....	Rochester
Walter S. Morgan.....	New Woodstock
Gerald W. O'Connor.....	Waterford
Thomas A. Powers.....	Clinton
Frank Pedlow	Albany
Carl W. Peterson.....	Ilion
William H. Phelps.....	Sidney
Kinley L. Phillips.....	Conewango
Daniel H. Pratt.....	Cambridge
J. Howard Proper.....	Schoharie
Philip M. Reilly.....	Albany
Walter J. Relihan.....	Owego
Russell S. Ryan.....	Schenectady
Henry J. Smith.....	Schenectady
Ulysses M. Slater.....	Stamford, Conn.
Hurley J. Stafford.....	Homer
Harold G. Sheldon.....	Albany
William K. Shyne.....	Troy
Benjamin Silverman	Schenectady
Alfred T. Stewart.....	Rochester
Edmund C. Sullivan.....	Albany

P. S. Shangraw.....	Richford, Vt.
Frank E. Sacco.....	Utica
Brenton T. Taylor.....	Hartford
Donald S. Taylor.....	Troy
Arthur B. Town.....	Dunkirk
Frank B. Valentine, Jr.....	Troy
Stephen J. Vanderlick.....	Northampton, Mass.
John J. Woods.....	Troy
Howard M. Woods.....	Rochester
John W. Whalen.....	Massena
Thomas W. Wallace, Jr.....	Schenectady
John E. Wayand.....	Scotia
Myron E. Wilkes.....	Rochester
Jack Wells	Ogdensburg
Clarence E. Wills.....	Chateaugay
C. Vincent Wiser.....	Rochester
Joseph H. Winchell.....	Albany
Floyd J. Young.....	Central Bridge
First Year Class — 104	

Summary of Students, Albany Law School

Third Year Class.....	98
Second Year Class.....	73
First Year Class.....	104
<hr/>	
Total.....	275
<hr/>	

STUDENTS OF THE ALBANY COLLEGE OF PHARMACY

Third Year Class

Horace Mitchell Carter.....	Salisbury
Raymond Franklin Clemens.....	Herkimer
Otto Edward Lange.....	Scotia
Third Year Class — 3	

Second Year Class

Kenneth James Ashton.....	Gloversville
Ford W. Aylsworth.....	Binghamton
Clarence L. Back.....	Lowville
Elliott J. Barnard.....	Rensselaer
William Ray Batchelor.....	Owego
Roy Boles	Chestertown
James L. Campbell.....	Albany
Harold Byron Carnrose.....	Carthage
Henry Joseph Carpenter.....	Altona
John James Cranney.....	Ilion
Alfred Gerald Drautz.....	Kingston
John Burns Earl.....	Cairo
Harland R. Eckler.....	Little Falls
Leslie Clayton Edsall.....	Warwick
Edward C. English.....	Windsor
George William Fear.....	Gloversville
Dwight Lyman Feek.....	Brushton
Peter J. Fuhrman.....	Troy
Miss Ella Adelaide Gardner.....	Westport
John Joseph Geraghty.....	Canajoharie
John Donlin Grady.....	Troy
Preston Greene, Jr.....	Beacon
Vincent F. Guerra.....	Schenectady
Gordon Abbott Haggerty.....	Richfield Springs
Edward James Kelleher.....	Fort Edward
Walter Henry Kipp.....	Waverly
Miss Sadye Frances Kramer.....	Troy
Miss Helen Amelia Langford.....	Gloversville
Fred C. Lathrop.....	Schenectady

Harry Levine	Nassau
John Lawrence Lindsay.....	Albany
Livingston Frederichsburg Lossa.....	Canajoharie
Edward G. Luebbert.....	Utica
Allen Parker Lyon.....	Middletown
Harry F. Mather.....	Schenectady
Howard C. Matthews.....	Schenectady
Thomas J. Morehead, Jr.....	Albany
Forrest Dryden Mulligan.....	Greenwich
Harold Samuel Newton.....	Schenectady
Francis J. O'Brien.....	Schenectady
William Pearson	Albany
Theodore Powell	Greenwich
Francis Thomas Wuest.....	Troy
Leo P. Quirk.....	Saranac Lake
Miss Ethel I. Rasmuson.....	Albany
William Erskine Schermerhown.....	Hunter
Spencer Leverett Stafford.....	Hudson
Bertram Van Patten.....	Port Jervis
William McKinley Van Slyke.....	Gouverneur
Clarence Van Vleck.....	Hudson
E. Harold Vincent.....	Ghent
George W. Woolsey.....	Madalin
Second Year Class — 52	

First Year Class

Harold James Adams.....	Carthage
Paul T. Akin.....	Troy
Joseph E. Aldi.....	Amsterdam
Mrs. Winifred Barbric.....	Albany
Adolph Berkowitz.....	Saratoga Springs
Harvey Stetson Bosworth.....	Schenectady
Miss Muriel Bowman.....	Dolgeville
Leland Brandhorst	Schenectady
John C. Bruce.....	Schenectady
Lester John Campbell.....	Greenwich
Percy J. Carpenter.....	Altona
Edward F. Connolly.....	Palmer

Paul Miller Crawford.....	Delhi
Gardner Allen Davis.....	Baldwinsville
Louis Emerson Day.....	Oxford
Miss Marion Chesebro Denison.....	Albany
Courtney Griswold Earle.....	Penn Yan
Simeon Einstein	Albany
Douglas D. Foody.....	Fultonville
Miss Gertrude Isabel Forsell.....	Lake George
Glenn Orvis Fradenburgh.....	Altmar
Lawrence Peter Girard.....	Cohoes
Harold Ingersoll Griffith.....	Ilion
Vincent Grimaldi	Utica
Kenneth Skiff Griswold.....	Hudson
Miss Mary Esther Guiltman.....	Bennington, Vt.
Clifford Daniel Hamlin.....	Binghamton
Bernard Erving Harvith.....	Albany
Ralph V. Hayden.....	Northampton
Percival Helprin.....	Saratoga Springs
Robert John Hewson.....	Watervliet
Miss Hildegard H. Hohl.....	Castleton
Ralph Franklin Horton.....	Ilion
John Milton Hughes.....	Schuylerville
Louis Jaffe	Albany
Kenneth G. Johnston.....	Albany
Vincent Leopold Kallen.....	Schenectady
Miss Margaret H. Kennedy.....	Cambridge
Benjamin Koblentz	Albany
Vivian James LeGrys.....	Cambridge
Samuel Lieberman	Rensselaer
Leo William Macksey.....	Dannemora
John Austin McAloon.....	Keeseville
F. Bernard McBride.....	Kingston
Richard H. McCarty, Jr.....	Saratoga Springs
Miss Jane McCullough.....	Green Island
Edward John McLaughlin.....	Proctor, Vt.
Robert Joseph Millichap, Jr.....	Troy
Clarence B. Millhouse.....	Troy
Maurice F. Moriarty.....	Greenwich

Abe Naumoff	Schenectady
Theodore J. Nunn.....	Frankfort
Miss Jane Miner O'Neill.....	Albany
Miss Matilda Patack.....	Albany
Valentine Putz	Islip
Joseph Thomas Quest.....	Troy
Miss Henrietta Anne Rabbett.....	Green Island
John Ricci.....	Rutland, Vt.
Edward Allison Rood.....	Ballston Spa
Frank Ruscitto	Schenectady
Hyman J. Sacharoff.....	Schenectady
Donald Eugene Sanford.....	Albany
Joseph George Schell.....	Amsterdam
George T. Schiess.....	Kingston
Harold Willard Shafer.....	Worcester
Walter Fred Shangraw.....	West Rutland, Vt.
John Francis Shea.....	Cohoes
Thomas A. Sheehy.....	Millbrook
Ralph William Shumway.....	Mexico
Dominick Joseph Siedlecki.....	Schenectady
Elliott S. Smith.....	Albany
Roswell Stanwix Smith.....	Poughkeepsie
Walter Allen Spateolts.....	Schoharie
William Hyman Stern.....	Utica
Harold Robert Strong.....	Millbrook
Dewey Patrick Trombly.....	Dannemora
Donald R. Urquhart.....	Schenectady
Frank J. Welicka.....	Amsterdam
Joseph H. Winchell.....	Albany
Miss Beatrice A. Woodworth.....	Saratoga Springs
Theodore Robert Wygant.....	Watervliet
First Year Class — 81	

Summary of Students, Albany College of Pharmacy

Third Year Class.....	3
Second Year Class.....	52

First Year Class.....	81
Total.....	<u>136</u>

SUMMARY OF STUDENTS, UNION UNIVERSITY

Union College	1002
Albany Medical College.....	81
Albany Law School.....	275
Albany College of Pharmacy.....	<u>136</u>
Total.....	1494

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UNIVERSITY OF ILLINOIS-URBANA



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